

PULP & PAPER

FEBRUARY 1958

Hammermill Process Data

(a Special)

page 69

Predictions . . . Paper Week

pages 57, 59

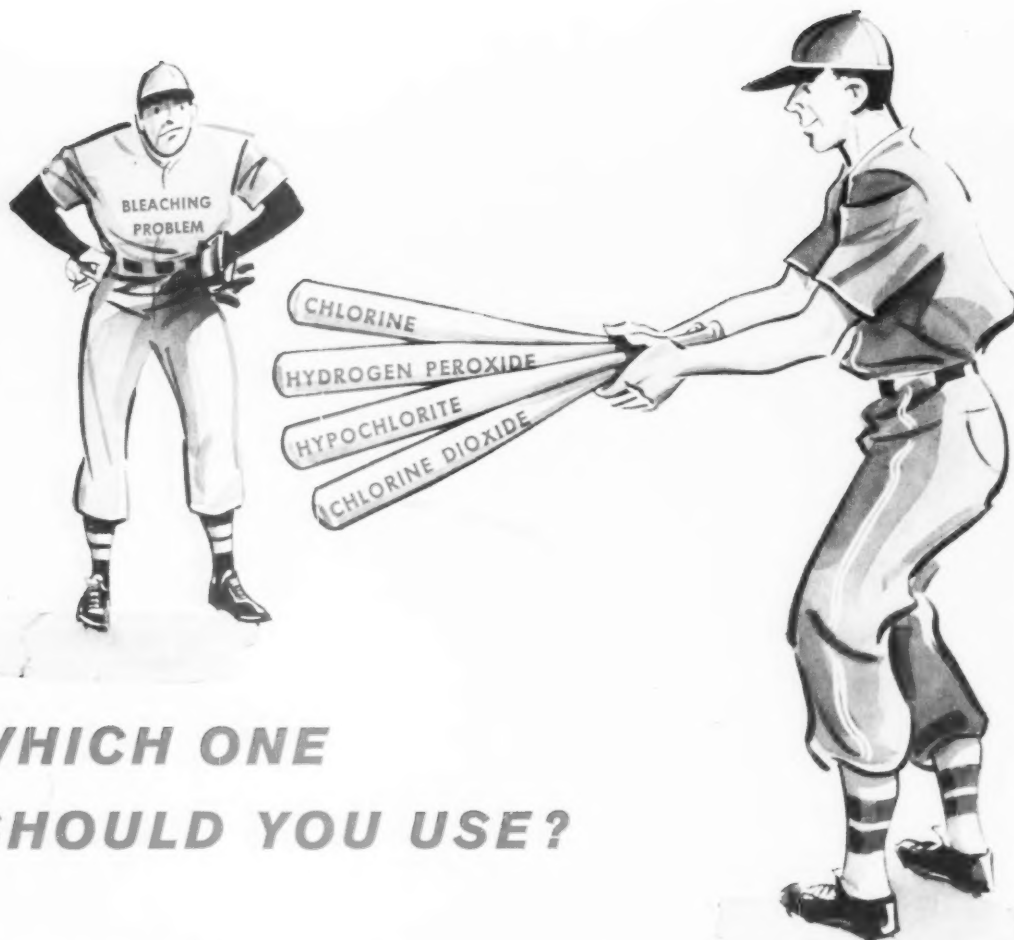
In South, More Site Prep

page 122



New Look at Biron (Wis.)

see page 62



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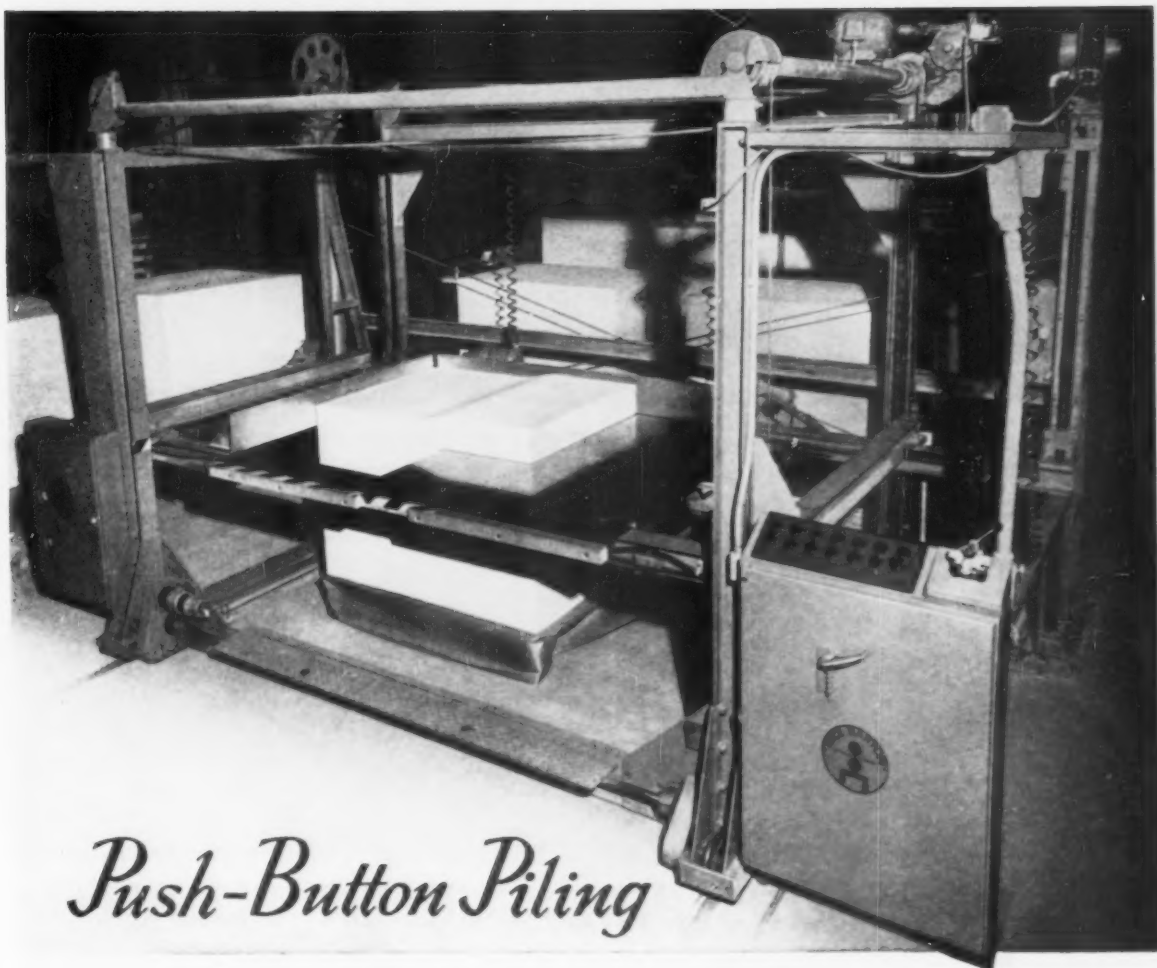
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You can get maximum trimming efficiency with the Rice Barton Precision Paper Piler.



Actual Finishing Room production records show over 3,300 pounds per man hour (loaded, trimmed and skidded) using a Rice Barton Piler.



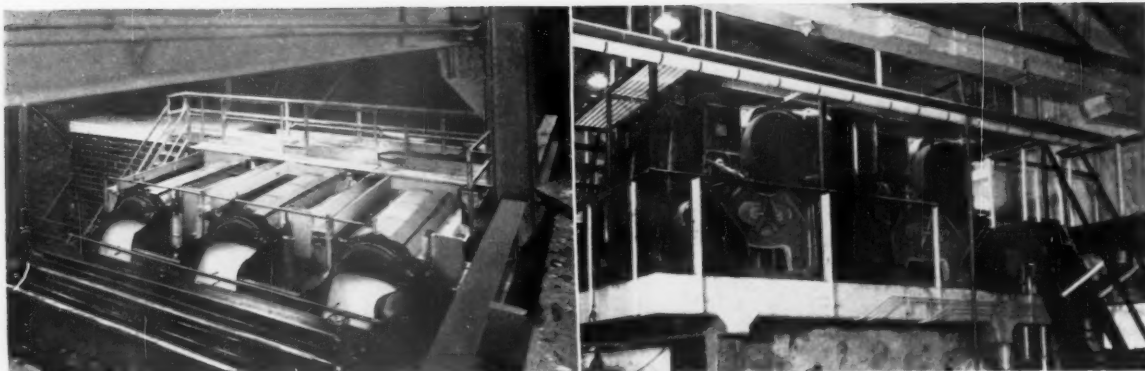
Analysis of your own trimming operation should prove conclusively to you that Rice Barton Push-Button Piling will pay for itself in less than One Year!



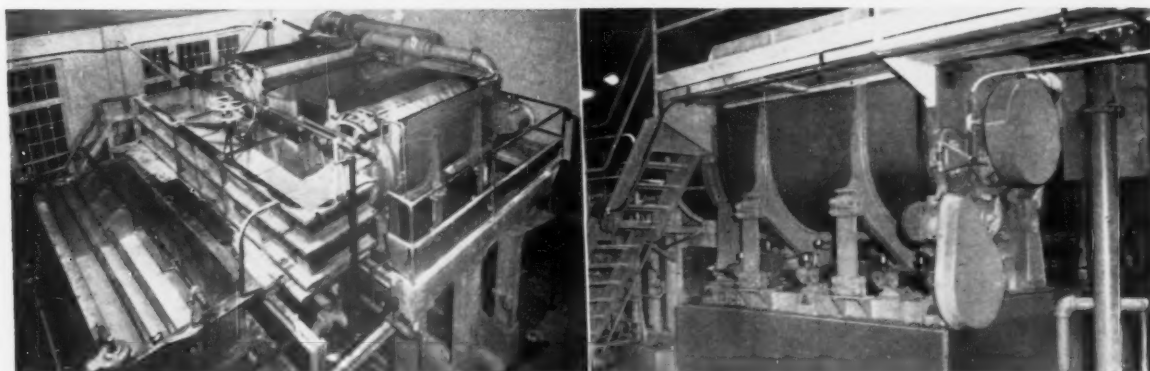
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WORCESTER, MASSACHUSETTS

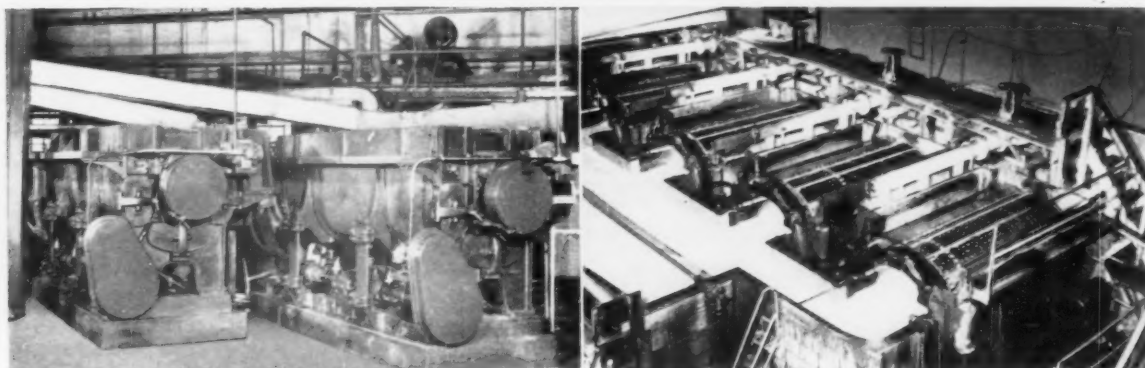
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Bird Screens are relied upon the world over for continuous, volume production of uniformly high quality paper.

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CANADIAN INGERSOLL-RAND COMPANY, Limited, Montreal

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In large-scale operations in the South . . . importance of clear cutting . . . cost figures for one-pass vs. two-pass preparation

You Wouldn't Know "the New Biron" 62

Exclusive, beautifully illustrated story on new machine and other additions at this Wisconsin coated paper mill . . . new practices for book paper are described . . . results, too

— COVER PICTURE —



Extending to left is huge machine room for Consolidated's new No. 5 machine. Towering power plant is in middle, just to right of mill entrance (this plant unfinished, with part of wall out). Other machines are in large structure to right. Two-story building at extreme right houses bleach plant. New filter plant and Accelerator are in stream of Wisconsin River.

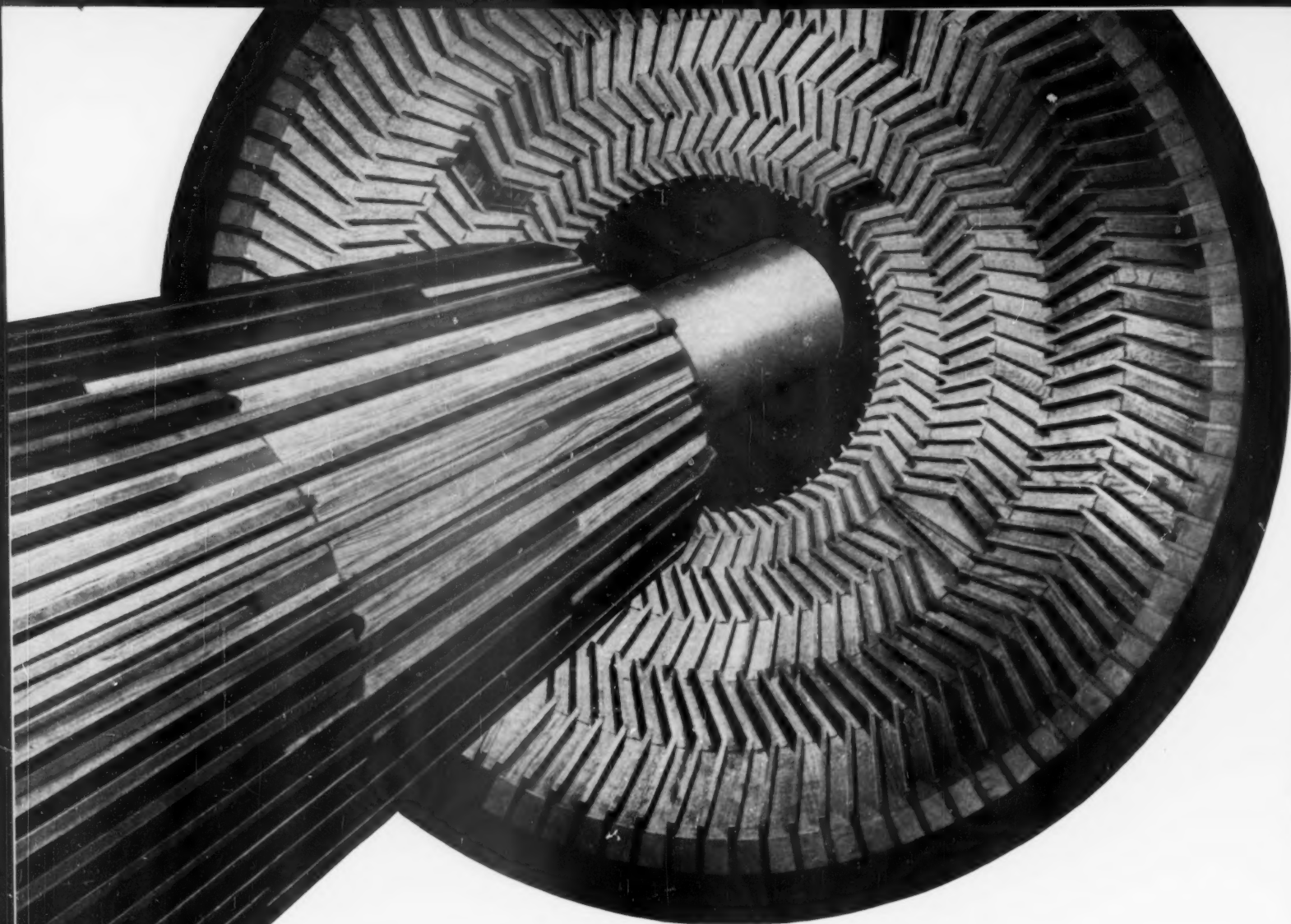
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IDENTICAL PLUG AND SHELL KNIFE properties on every order results from Bolton's modern scientific Microlyzing process.

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reason why papermakers have made Bolton the leader in the manufacture of Jordan fillings for refining efficiency.

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* REG. T.M. APP. FOR.

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PULP & PAPER — February 1958

THE EDITOR READS HIS MAIL



Address letters to The Editor, PULP & PAPER, 1791 Howard St., Chicago 26, Ill.

India Interested in Bagasse

—Peoria, Ill.

M. J. J. A. Johnson, M.I.Mech.E.
 c/o Royal Bombay Yacht Club
 Apollo Bunder
 Bombay 1, India

We noted your inquiry addressed to PULP & PAPER, as regards the Mechano-Chemical Process for preparing papermaking pulps from agricultural residues and, in particular, sugarcane bagasse. We are, therefore, furnishing reprints describing the M-C process and other developments pertaining to the utilization of bagasse.

Closely associated with the M-C process and contributing greatly to the successful use of bagasse for paper-making are methods for separating pith from bagasse fiber. The processes which may employ hydropulpers or disc mills for loosening the pith from the fiber are described in bulletin ARS 71-4 which is being sent under separate cover. Where practicable, the disc mill method is to be preferred for economy and ease of operation. This procedure has been tested out under commercial-scale conditions and is entirely practical. A variation of this procedure employs a disc mill having its shaft vertical instead of horizontal as in most disc mills.

T. F. CLARK, in Charge Pulp-
 ing and Mechanical Processing
 Unit, Forage and Agricultural
 Residues Section, Northern Util-
 ization and Development Divi-
 sion, U. S. Dept. of Agriculture.

Paper Clothing

—Providence, R. I.

Editor: The writer read with considerable interest the news in PULP & PAPER concerning men's paper shirts and paper bathing suits. We are interested in keeping abreast of developments of this type.

HAROLD S. ROBERTS
 Roberts Paper Co.

Israel Wants Standards

—Jerusalem

Editor:

Our department is interested in standardizing the different kinds of paper and their raw materials used in

this country.

For this purpose we would like to know, how these standards concern-
 ing:

- a) Paper & boards
- b) Pulp
- c) Waste paper

as developed in the U.S.A.

Would you let us know, where to get this information?

M. KAISER

Director Paper Department,
 Ministry of Commerce & Indus-
 try, State of Israel.

Eds. note—Mr. Kaiser was referred to U.S.A. references on standards.

Bouquet

Editor: The article on Dryden Paper Co. was very well written and well presented. Congratulations on a job well done.

E. LORNE GOODALL
 President, Dryden Paper Co.
 Ltd.

Ode To A Boiler Fireman

A Big Boiler's made of iron and steel;
 without it civilization would sink.
 But there's two things it won't do,
 not even try,
 and that's reason and think.

Now that's what that bird on the bench
 is for,
 watching gauges through storm and rain.
 He might not look like much to you,
 but to that Boiler, he's the brain.

His work ain't hard in a physical way
 but mentally it's a pip.
 You lose that water slam out of the glass
 and you're gonna catch plenty of lip.

But the ole fireman prods on like he don't
 hear a word.
 He's paying no mind to the static.
 Just like the water gauge, oil feed and
 draft,
 He's rocking on full automatic.

And when he leaves this ole earth, for
 the great beyond
 He's full of happiness my frien'.
 Because the place where he's goin' and
 The job he'll take over, he needs no
 breakin' in!

—RAYMOND SANTISO
 Owens-Illinois Glass Co., Mill Div.,
 Jacksonville, Fla., Mill

When Gottesman enters the picture...



*... you get the same, fine service
for all grades of pulp*

Through the Gottesman Organization, outstanding pulp producers everywhere supply you with Bleached and Unbleached Sulphite, Bleached Hardwood, Groundwood, Bleached, Semi-Bleached and Unbleached Kraft in the quality and quantities you must have for efficient production. And no matter what the grade of pulp, our service reflects over 70 years of experience in satisfying our many customers.

The Gottesman Organization

Established 1886

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General Outlook . . .

"BUSINESS WILL BE BETTER than the 'nail-biters' fear," says Sinclair Weeks, secretary of commerce. Year-end figures show business put \$37 billion into new plant and equipment in 1957, 6% more than in 1956. "That will fall off a little this year," he said. "But eventually business will have to spend more if only to 'keep up with the Joneses' technologically." He said the federal government plans to spend \$2 billion on the interstate highway program this year, and the administration will recommend an increase in research spending. . . .

MORE MONEY IS SPENT FOR PACKAGING in the food industry than for advertising and promotion, according to Walter Bruce of American Can Co. A recent survey of 98 food and grocery firms shows the companies spent 6% for advertising and promotion and 10% for packaging. . . .

RESUMPTION OF THE UPTREND, following the little dip which characterized business activity in 1957, will come around mid-1958, according to a Chicago Tribune business review. When it comes, there is reason to believe it will permit 1958's vital statistics — production, sales, employment, etc. — to be just about the same as 1957, and 1957 was a good year. This summarizes the opinion of "the most respected practicing industrialists and economic seers," the report states. . . .

'58 CAPACITY WILL BE DOUBLE '46 CONSUMPTION, according to the Newsprint Information Committee. In 1959, capacity will climb another 1,000,000 tons to nearly 10,000,000, almost 40% more newsprint than was used in the U.S. and Canada in 1955. Population growth and other factors are expected to make the new capacity a boon by 1960. . . .

SEES STRONG SUPPORTING FORCES IN U.S. ECONOMY. . . . Robert H. Craft, pres. of The Chase Bank, is optimistic about the business outlook. "Employment is at a peak, unemployment is modest and personal income is running \$17 billion higher than a year ago," he said. "Overcapacity in some lines is less serious than appearances suggest."

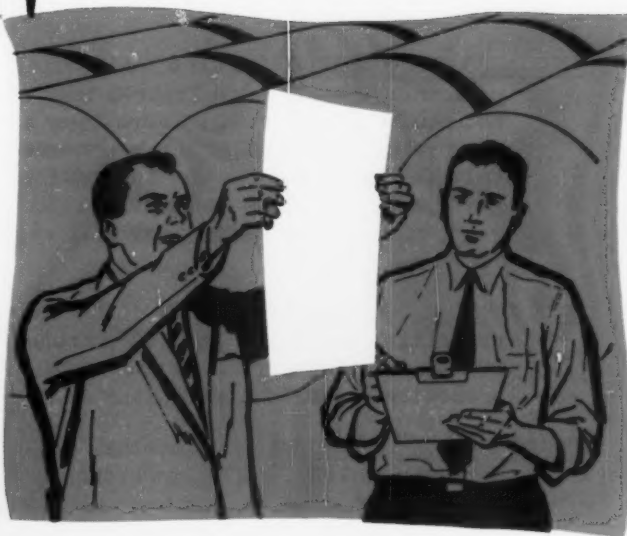
NEWSPRINT MILLS MAY OPERATE AT 88% OF CAPACITY. . . . An analysis prepared by the Newsprint Assn. of Canada shows North American newsprint industry may operate this year at as low as 88% of capacity. Consumption is fairly stable, while capacity is expected to be 7% greater than last year. "In other nations of the free world, 1958 prospects indicate a capacity reserve of 4%," the report states. . . .

PREDICTS BUSINESS UPTURN. . . . R. Carl Chandler, chairman of Standard Packaging Corp., says, "Inventories of many paper consumers are down to an irreducible minimum. Just a little lift in business will be enough to touch off buying of paper supplies for inventory." Standard Packaging will report increases in both sales and net profits for 1957, he said.

MOST EXECS PREDICT INCREASE IN EXPORT SALES. . . . In a recent survey of executives in Canada's pulp and paper industry, 32% predicted an increase in export sales during 1958. 21% could see no change and 4% looked for a decline. The remainder said their companies were not directly concerned with export business. . . .

Please turn page for more

**BUTTERWORTH
CALENDER
ROLLS
mean
business**



- **exactly the desired finish at the "business end" of your papermaking machines**
- **many extra hours of service without requiring turning down or refilling**

Butterworth Dura-Smooth Rolls help build sales. You get exactly the desired finish on calendered papers because Butterworth Rolls are built to precise specifications . . . and tested for hardness, smoothness, and density.

Production costs are reduced because Butterworth Rolls — new or refilled — are designed for heavy-duty service, and long, trouble-free operation.

And you get Butterworth Rolls at competitive prices. Call or write today for a quotation on your requirements.

H. W. BUTTERWORTH & SONS COMPANY
Bethayres, Pa. Division of Van Norman Industries, Inc.

BUTTERWORTH

More than 60 years of Roll-Making Experience

REGULAR TENACITY VISCOSE PULP may be hard to sell in European markets at present prices, according to Duggan Gray, director of pulp sales, Columbia Cellulose Co., who, with Dr. Morris Wayman, tech. director, recently toured the United Kingdom, France, Italy and Belgium. Scandinavian 90-91 alpha pulps are being sold at equivalent of \$185 U.S. funds per metric ton CIF European ports while higher alpha viscose pulps from North America are being offered at from \$203 and \$210. . . .

Mills and Mill Plans . . .

REPORT OF TWO MILLS DENIED. . . . International Paper Co. will locate two new pulp and paper mills in Oregon, according to The Oregonian, Portland newspaper. A company spokesman said the report is "premature" and the company is considering construction of one, not two mills. The newspaper mentioned two sites, one near Roseburg and the other in the Klamath Falls area. Actually, several sites are being studied. Extensive timber holdings in southwest Oregon were acquired by IP through its Long-Bell merger. . . .

CONTAINER CORP. SHAKES DOWN MACHINE AT BREWTON. . . . Container Corp. of America celebrated the New Year by shaking down its big, 216-in. Rice Barton machine at the new \$30 million kraft mill in Brewton, Ala. CCA backs up the mill with a first refusal agreement on pulpwood harvested from some 400,000 acres in Alabama. . . .

CZ MAY BUILD MILLS IN NEWFOUNDLAND. . . . Crown Zellerbach Corp. contemplates building facilities producing at least 400 tons of newsprint and up to 2,000 tons of woodpulp a day, supported by government timberlands in Newfoundland and Labrador. The proposal is approved by the Newfoundland Cabinet and is being submitted to the Provincial Assembly for confirmation (see page 73). . . .

THREE MILLS START UP. . . . The new Georgia-Pacific Paper Co. pulp, paper and board mill at Toledo, Ore., began production of kraft pulp in rolls and liner in December and was to run bag and sack stock and counter rolls of wrapping paper in January (see page 81). Prairie Fibreboard, Ltd.'s new mill at Saskatoon, Sask., started production of strawboard and will be turning out hardboard by early spring (see page 85). The Huss Ontonagon Pulp and Paper Co. has started production of corrugating medium in its mill in Ontonagon county, Mich. Formerly a National Container Co. mill producing virgin kraft liner board, the mill was rebuilt at a cost of \$5,000,000. . . .

WILL SPEND OVER \$1,000,000 ON EXPANSION. . . . The Crossett Co., Crossett, Ark., announces plans to begin work immediately on a program to modify pulp cooking process at its bleached food board mill, provide greater storage facilities for hardwood pulp and increase capacity of chemical recovery equipment to be completed by summer. The firm will spend an additional \$200,000 on new space to expand its foodboard and other research. . . .

ANOTHER PULP MILL FOR ALBERTA is reported. Gordon McNab, pres. of Alberta West Forest Products Corp., announces plans for a \$25,000,000 project. The company has an option on 5,200 sq. mi. of pulpwood timber in the White Court area 110 mi. west of Edmonton where it originally planned to locate a mill. A site closer to Edmonton, where the firm has access to several hundred acres, is now regarded more favorably. Capacity would be 300 tons daily. . . .

Please turn page for more



MATCHLESS STEAM HOSE



Keeping a raging killer under control

Scalding steam is a powerful work-saving servant—but let it get out of hand and it can mean sudden death. Yet this valuable, though unruly demon is tamed by a hose that is *absolutely safe*—U. S. Matchless® Steam Hose. This hose cannot burst—even with steam pressures up to 200 pounds. After long, safe service—far longer than ordinary steam hose—the wall structure, instead of bursting, allows a trickle of steam to merely *leak* through—reducing the pressure and giving plenty of notice that a replacement is finally needed. Safety councils give U. S. Matchless their full approval.

U. S. Matchless Steam Hose is used in steam lines in every kind of industry. For such a husky hose, it is extremely flexible and easy to handle. The tube is made of specially compounded stock to provide high resistance to heat; the carcass is of braided mild steel wire to give outstanding strength, flexibility and ductility; a synthetic rubber cover resists heat, oil and weather.

U. S. Matchless Steam Hose is obtainable at any of the 28 "U. S." District Sales Offices, at selected distributors, or write us at Rockefeller Center, New York 20, N. Y. In Canada, Dominion Rubber Co., Ltd.



Mechanical Goods Division

United States Rubber

See things you never saw before. Visit U. S. Rubber's New Exhibit Hall, Rockefeller Center, N. Y.

COATER INSTALLED AT COVINGTON, VA. . . . A trailing blade coater has been installed on No. 8 bleached board Fourdrinier machine at West Virginia Pulp and Paper Co., Covington, Va., mill. The coater, between calender stacks, is credited with improving printing qualities with a thin layer of clay. No. 8 is Covington's biggest and newest machine. . . .

NEW RECOVERY UNIT INSTALLED BY KVP. . . . A second recovery unit at the KVP mill in Espanola, Ont., has a Combustion Engineering boiler with a capacity of 45,800 lbs. of dry solids per hr. with steam output of 162,000 lbs. per hr. A Cottrell electric precipitator manufactured by Precipitation Co. of Canada will handle 121,000 cu. ft. of gas per min. for recovery of 94% of the suspended salt cake. . . .

PLANS TO BUILD SECOND CONTAINER PLANT. . . . Boise Cascade Corp. plans immediate construction start of a second container plant, to be completed by early summer, at Burley, Idaho. The first plant, near Attalia, Wash., is to start production in February. Both will be operated by Cascade Container Corp., a subsidiary. . . .

WILL BUILD NEW PLANT. . . . Bergstrom Paper Co. will build a new plant near Neenah, Wis., to house operations presently performed at the company's Waupaca div. plant, formerly Whale Safety Paper Co. . . .

AWARDS CONTRACT FOR MILL EXPANSION. . . . Nekoosa-Edwards Paper Co. has started construction of a bleach plant, machine room addition and installation of a paper machine at its Potsdam, N.Y., mill. The work, plus filtration facilities for process water and other improvements will cost \$500,000. . . .

INTERNATIONAL PAPER PLANS NEW CONVERTING PLANT. . . . IP will build a new plant for manufacture of Pure-Pak milk cartons near North Miami Beach, Fla., at rate of 35 million containers a month. It will be the twelfth operated by IP's Single Service Division. . . .

UNION BAG-CAMP EYES LUMBER CO. . . . Union Bag-Camp is reportedly negotiating to buy the Bates Lumber Co. in New Bern, N.C., with plans to acquire sawmills and facilities to double its output. Negotiations are expected to be complete in a few weeks. The firm's Franklin, Va., mill is an integrated pulp, paper and sawmill.

Other News . . .

BECOMES COMMISSIONER FOR FORESTS. . . . The British Columbia government will give Chief Justice Gordon Sloan wide executive powers in his new position as commissioner for forest affairs (see page 73).

AL&PCO PRESIDENT VISITS U.S. . . . Pres. Tadao Sasayama of Alaska Lumber & Pulp Co., during a month's visit in the states, plans to talk to Dillon Reed & Co., New York, on contract details for financing. The Export-Import Bank of Japan has loaned the firm \$24 million for a new pulp mill being built near Sitka, Alaska. An additional \$12 million is being raised in the U.S. through the private sale of bonds. . . .

WASHABLE CORRUGATED SHIPPING CONTAINER is being used in California. Engineered by Container Corp. of America's Oakland, Calif., plant developed it at request of Pacific Fruit and Produce Co. to enable them to meet demand for washed produce and still retain advantages of shipping in telescoping containers. . . .

Please turn page for more

They packed up turbine oil worries at Alton Box Board

six turbines use **NONPAREIL** Turbine Oil, have life-of-turbine guarantee

Six NONPAREIL Turbine Oil guarantee certificates on the turbine room wall are pointed out by M. D. Jones, Superintendent of the Power and Steam Department. Standard Oil Company's lubrication engineer, W. P. "Sandy" Wehking, helped put most of the certificates there.



Alton Box Board Company, Alton, Illinois, doesn't have a worry in the world about turbine oil. The Company has six turbines in service—four in the power plant and two in the paper mill—all using NONPAREIL Turbine Oil. Why no worries? Because each of these fills of turbine oil is *guaranteed for the life of the turbine* not to exceed a neutralization number above 0.15 mg. KOH/g.

The five Westinghouse and one G-E turbine oil fills have demonstrated a remarkable low acidity record over the years. Regular inspection by Standard Oil technical service representatives and analysis of oil samples by the Standard Oil Research Laboratory, Whiting, Indiana, makes sure the oil is performing in accordance with the guarantee. At Alton Box, neutralization number of the oil has been running 0.02 to 0.03 mg. KOH/g.

This is what such service from a turbine oil means to Alton Box Board: They can run one of the largest board mills in the world without having to concern themselves with the performance of the turbine oil they are using. Standard Oil technical service men inspect the system. The oil is sampled and analyzed regularly. Plant operation will never be interrupted because of turbine oil lubrication failure.

The same performance from NONPAREIL Turbine Oil and service from Standard Oil awaits you. Find out. Call your nearby Standard Oil office near you in any of the 15 Midwest and Rocky Mountain states. Or write Standard Oil Company, 910 South Michigan Avenue, Chicago 80, Illinois.

How NONPAREIL Turbine Oil is performing at Alton Box Board

Make of Turbine	kw. (H.P.)	Year NONPAREIL Installed	Location	Gal. fill.	Neut. No. mg. KOH/g.
Westinghouse	1,500	1934	Power Plant	85	.02
Westinghouse	3,125	1936	Power Plant	275	.03
General Elec.	400	1936	Paper Mill	50	.02
Westinghouse	1,500	1941	Power Plant	250	.03
Westinghouse	5,000	1947	Power Plant	230	.03
Westinghouse	1,500	1947	Paper Mill	80	.02

Discussing lubrication. Sandy Wehking, Standard's man on the Alton Box Board account, is well qualified to do so. He's been at this work for 15 years. Sandy studied chemical engineering at Blackburn College. He has also completed the Standard Oil Sales Engineering School.

STANDARD
STANDARD OIL
COMPANY
(Indiana)

SEEKS REVERSAL OF COURT ORDER. . . . Crown Zellerbach Corp. will ask the U.S. Court of Appeals to review the decision of the FTC, which ordered the firm to divest itself of St. Helens Pulp & Paper Co. . . .

GAYLORD STARTS CONTINUOUS DIGESTER. . . . A new Pandia Chemi-Pulper continuous digester is now operating at Crown Zellerbach's Gaylord division in Bogalusa, La., marking the first time Gaylord has departed from batch pulping in stationary digesters. Unit has a designed capacity of 150 tons a day of corrugating board grade pulp from neutral sulfite hardwood. Gaylord says it is producing a considerably higher yield than similar grade batch-made pulps. . . .

JACKSONVILLE GETS CASH REGISTER PLANT. . . . National Cash Register Co. is building a 500,000 sq. ft. plant just outside the Jacksonville city limits to slit large paper rolls into small-size rolls used in its business machines.

CONVERTING PLANT MAPPED FOR NASHVILLE. . . . General Box Co., Des Plaines, Ill., wire-bound box manufacturer, will build a corrugated container plant in Nashville, Tenn.

WILL INTRODUCE METALIZED PAPER EARLY IN '58. . . . Champion Paper & Fibre Co., Hamilton, O., has acquired 50% of the capital stock of NRC Vaculite Corp., Cambridge, Mass., subsidiary of National Research Corp. The joint subsidiary will introduce metalized paper for sale in packaging, printing and building industries, early in 1958. Potential market is believed to be over \$200 million a year, officials stated. Metalized paper has a bright, highly-reflective surface formed by depositing metal vapor on paper traveling at high speed under pressure. . . .

DENIES RUMORS OF SELLING FIRM. . . . Martin N. Deggeler, pres. of Harbor Plywood Corp., owners of extensive timber holdings in western Washington, recently spiked rumors that plans are afoot to sell the firm to International Paper Co. . . .

STRIKE IN BRITISH COLUMBIA CONTINUES. . . . British Columbia pulp and paper workers continued into January the strike that began Nov. 14 and has made idle about 5,500 workers in nine mills. . . .

SEVERAL PLANTS SOLD. . . . Fibreboard Paper Products Corp. sold its wholly owned subsidiary, Fibreboard Products (Eastern div.) Inc., including two paper-board converting plants in Philadelphia and Baltimore, to Penn-Mar Container Corp. It also sold its Metuchen, N.J., floor covering plant to City Investing Co. of New York, a real estate investing concern. Interstate Container Corp., Glendale, Long Island, bought all assets of Reading Corrugated Container Corp., paper manufacturer and corrugated converter, of Reading, Pa. . . .

NORTH WESTERN NEAR 430 TONS A DAY. . . . Output of North Western Pulp and Power is currently approaching planned capacity of 430 tons a day and "it is now evident that a larger production will eventually be achieved," says Vice Pres. Reginald L. Vayo of St. Regis. "Steadily accelerating sales of Alberta Hi-Brite prove a market can always be found for a quality product," he said. "The future offers good promise for high grade pulp made possible by the fiber inherent in trees of western Alberta. . . ."

Dependable Equipment...

for
the
**PAPER
INDUSTRY**



**D. J. MURRAY
MANUFACTURING CO.**

Manufacturers Since 1883
WAUSAU, WISCONSIN

Reports on European Industry

San Francisco . . . European pulp and paper industries are modernizing, according to Dr. Walter Holzer, Crown Zellerbach Corp., who addressed the new Golden Gate District of TAPPI. He reported that there are 512 paper mills in Italy, but five mills produce 70-80% of the paper. Imported pulp is used, as well as a very little native wood and some straw.

Dr. Holzer said the Scandinavian industry is just beginning to put in stainless steel lined digesters and continuous digesters which produce pulp equal in quality to batch pulp. Throughout Europe, he said, there is a tendency toward cooperative research work supported by government or industry or both.

Need Mills to Use Chilean Pine

Santiago . . . Chile has 450,000 acres of Insignis pine plantations which are rapidly maturing, according to C. W. Scott, British forester who recently completed a technical assistance assignment here for FAO. In order to get a proper return on the great volume of wood accumulating at an average annual rate of about 12 cu. yd. per acre, Chile must have enough pulp mills and other wood processing plants to use the pine. The forests were established by private enterprise.

Russia Orders Swedish Digesters

Stockholm . . . The Soviet Union has ordered 16 sulfite pulp digesters from Karlstads Mekaniska Werkstad, to be delivered before the end of 1959. Each digester will be 56 ft. long with a diameter of 18 ft. and weigh about 88 tons. They will be assembled and towed from Karlstad on Lake Vanern via the Gota Canal and across the Baltic to Leningrad.

No More Pulp Imports

Chandraghona, East Pakistan . . . Karnaphuli Paper Mills are expected to produce their entire pulp requirements from indigenous raw materials this coming year. In previous years about 50% was imported, and this past year imports were less than 5% of total requirements. The firm has placed orders for machinery to work in the deep bamboo forests of the Chittagong Hill Tracts. Bamboo will be transported to the mill site on a large scale.

Colt Goes to Mexico

Mexico, D.F. . . . John B. Colt is the new coordinator of marketing for Cia. Industrial de San Cristobal, S.A., bagasse pulp and paper mill in which Scott Paper Co. has a 50% interest. He will work with Dr. Roy L. Davis, exec. vice pres. of San Cristobal and former manager of Scott's Detroit mill.

New Paper Mill in India

Bhopal . . . An Indian paper manufacturing firm plans to establish a 100-ton per day paper mill in the Rewa division of Madhya Pradesh, to start production by 1959. The state government granted a 20-year lease of bamboo forests.

New Machines in Britain

London . . . British Cellophane, Ltd., plan to build a new plant in Barrow-in-Furness. Wolvercote Paper Mills plan to install a 146 in. machine, increasing capacity to 200 tons weekly. St. Annes Board Mill Co. announces a large new board machine.

Cargal Cartons for Air-Drop

(pictured below)

Cargal cartons were used for on-the-spot delivery of provisions and equipment to the Israel army, during the Sinai war. Even where parachutes failed to open, contents arrived undamaged.

Appointed to Pakistan

Khulna, East Pakistan . . . H. P. "Bud" Ellis, well-known in the British Columbia forest industry, has been appointed mgr. of forestry operations in Pakistan for Sandwell International Ltd. He will be in charge of the woods' operation for the Khulna pulp and paper mill in East Pakistan where Sandwell has a management contract with the Pakistan Industrial Development Corp.

Equipment for Mexican Mill

Oaxaca, Mexico . . . Fabricas de Papel Tuxtepec, S.A., has ordered the largest integral shaft motion control "Vari-Pitch" sheaves ever made by Allis-Chalmers, for driving the sections of a newsprint machine. A-C is also furnishing seven companion sheaves, 18 paper stock pumps and eight frame-mounted open impeller pumps.

Will Use Corn Stalks for Pulp

Hadera, Israel . . . Parsons & Whittemore, Inc., contractors for complete pulp and paper mills, and American Israeli Paper Mills Ltd., have worked out a suitable process for using corn stalks as raw material for the Israel firm's new pulp mill. P&W expects to furnish equipment for depithing and pulping the corn stalks.

Turn to page 18 for
World Technical News

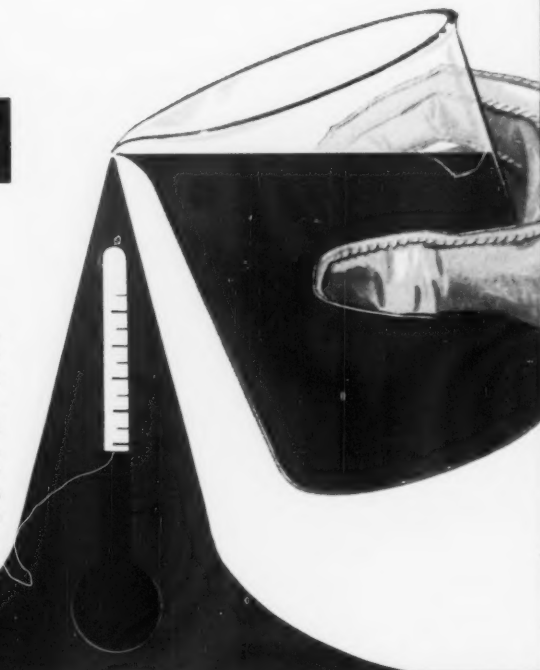


CYANAMID LIQUID ALUM

Colder than ice water
...yet flows freely!

If you are considering a liquid alum installation, here's good news in connection with any possible "freeze-up" worries. Cyanamid's Liquid Alum won't crystallize even at sub-freezing temperatures.

Well worth your investigation are the year-round advantages of Cyanamid Liquid Alum—lower cost, labor savings and easier, neater handling. Our extensive know-how on dry-to-liquid conversions is available through our local representative to help in your planning.



HELP WANTED?

LOW TEMP. HELPS SIZE

Two factors credited by a board manufacturer for good sizing are: (1) the addition of 5 to 7 lbs. rosin size and 3 lbs. sodium phospho aluminate per ton at the regular box; and (2) dropping temperature down to 160-180° on the first eight or ten driers.

BETTER SHEET FORMATION

Better disintegration of fiber bundles and improved distribution of rosin size is credited by an Indiana mill to ACCOCEL® 741 when added in very small amounts to the breaker beater.

FOIL RATTLE BEAT

A Wisconsin mill eliminated the harshness and rattle on lightweight aluminum foil backing papers by switching from regular rosin size to CYFOR® Fortified Rosin Size. Now much less is required on the fiber to give consistently good results.

NON-STICKING AT DRIER

One mill has found that in addition to its wet-strength advantages, PAREZ® 607 Wet-Strength Resin aids in keeping paper from sticking to high speed driers.

TAKING STOCK

Mills everywhere must take stock of paper market trends, and plan accordingly. We do it, too. That's why Cyanamid continually develops new and improved products for the paper industry...and that's how Cyanamid can offer the largest line of paper chemicals available to mills and fabricators. The Paper Chemicals Department is at your service.

BEAT STICKING AT LOW

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ALBANY'S NEW IDEAS for better papermaking



View through window of laboratory oven shows used felt samples being incubated under simulated mill conditions to determine bacterial growth and damage.

HOW TO USE LABORATORY SERVICE

Every year, hundreds of paper mills call on Albany Felt's Customer Service Laboratory for assistance in solving problems concerning felt operation. These concern such items as injurious bacterial growth, abnormal wear, alkaline or chemical damage, excessive filling, and many others. The Albany Felt Laboratory, which is the most complete and modern in the field, employs every known chemical and mechanical testing device to isolate the cause of these difficulties and provides suggestions for their correction. In many cases, these have been invaluable aids for improving felt performance. This service, which Albany Felt offers as another contribution towards the common objective of improved papermaking, is available to all mills without obligation. Our goal, as always, is to help you produce more saleable tons per day!



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MAIN OFFICE & PLANT, ALBANY, N.Y.
OTHER PLANTS: HOOSICK FALLS, N.Y.; N. MONMOUTH, ME.; ST. STEPHEN, S.C.; COWANSVILLE, P.Q.
"THE WORLD'S LARGEST MANUFACTURER OF PAPER MACHINE FELTS"

What Overseas Technicians Are Doing About Lignin, That Problem Child of Our Industry

(Eds. note: Presented with permission of The Institute of Paper Chemistry, under supervision of Curtis L. Brown, editor of the IPC Bulletin. Photostats or translations of original reports may be obtained at a reasonable cost by writing Eugene Bunker, librarian, Institute of Paper Chemistry, P.O. Box 498, Appleton, Wis.)

Mechanism for Color Tests

NAKANO, JUNZO, HIRAKAWA, KIMIO, ISHIZU, ATSUSHI, and MIGITA, NORUHIKO. VII. The Mäule color reaction. (4). J. Japan Wood Research Soc. 3, no. 5: 194-7 (Oct., 1957). [In Japanese; English summary] Bull. Inst. Paper Chem. 28:493.

Based on experimental evidence, the following mechanism for the Mäule color reaction is suggested: Hardwood lignin reacts with 1% potassium permanganate to form "oxidized lignin A" which is further oxidized into "oxidized lignin B" by reaction with hydrochloric acid plus manganese dioxide (from the reduction of the permanganate); subsequent treatment in ammonium hydroxide yields a purplish red coloration. (The chlorine produced in the second step is not required for color formation). The coloring material behaves toward acids and alkalis like phenolphthalein. The Mäule reaction of lignin is attributed to the keto group in alpha position of the side chain and does not involve the aldehyde group or the double bond of the side chain. C.L.B.

Russian—Condenses with Phenol

CHUDAKOV, M. I. Zhur. Priklad. Khim. 29: 1418-24 (1956). [In Russian] Bull. Inst. Paper Chem. 28: 491-2.

It has been suggested that the condensation reaction between lignin and phenol, in which a resinous "phenol-lignin" product is formed, involves the hydrogen on the phenol ring in a position ortho or para to the hydroxyl group, but the functional group of lignin taking part in the reaction is not known. In an investigation of the possible structure of phenol-lignin, diphenylene oxide (I) was the main product obtained when these resins were subjected to thermal treatment (8 hr. at 400°C.) and steam distilled. Only trace amounts of (I) were formed when phenol alone and mix-

tures of phenol plus cellulose or humic acids were subjected to a similar treatment, but significant amounts of (I) were obtained upon thermal treatment of condensation products of phenol with phenyl glycol and ethylene glycol. On the basis of these results, it is suggested that the formation of (I) is not due to the oxidation of phenol but to its reaction with the enediol groups of lignin. The following mechanism of condensation reaction is proposed: Below 200°, one enediol group of lignin reacts with the hydrogens in the ortho position of two phenol molecules with the elimination of two molecules of water; at higher temperatures, another molecule of water is eliminated from two phenolic hydroxyls; and at 380-400°, the condensation product decomposes with the liberation of (I). J.S.

Study of Cuprammonium Lignin

BECHERER, G., HOHNE, E., and VOIGTLAENDER-TETZNER, G. An x-ray study of cuprammonium lignin. Naturwiss. 42, no. 21: 578 (1955). [In German] Bull. Inst. Paper Chem. 28: 491.

From the analysis of x-ray spectra of cuprammonium lignin it is concluded that the basic unit of lignin contains a planar six-carbon ring. Two sharp absorption maxima at 1.4 and 2.5 Å indicate the carbon-to-carbon distances to be 1.4 Å around the ring and 2.4 and 2.8 Å across the ring. J.S.

Sulfite Cation-Exchange Resins

KOBAYASHI, TADASHI, and SUHARA, YASUO. Repts. Govt. Chem. Ind. Research Inst., Tokyo 52, no. 8: 255-61; summary: xxix (Aug., 1957). [In Japanese; English summary] Bull. Inst. Paper Chem. 28: 524-5.

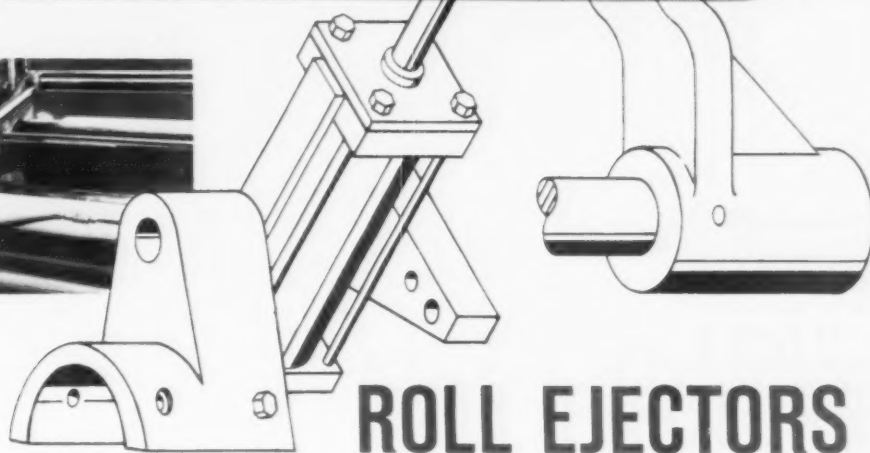
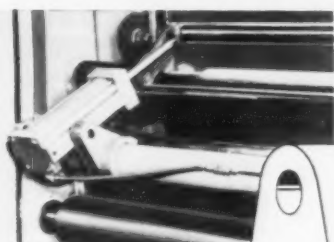
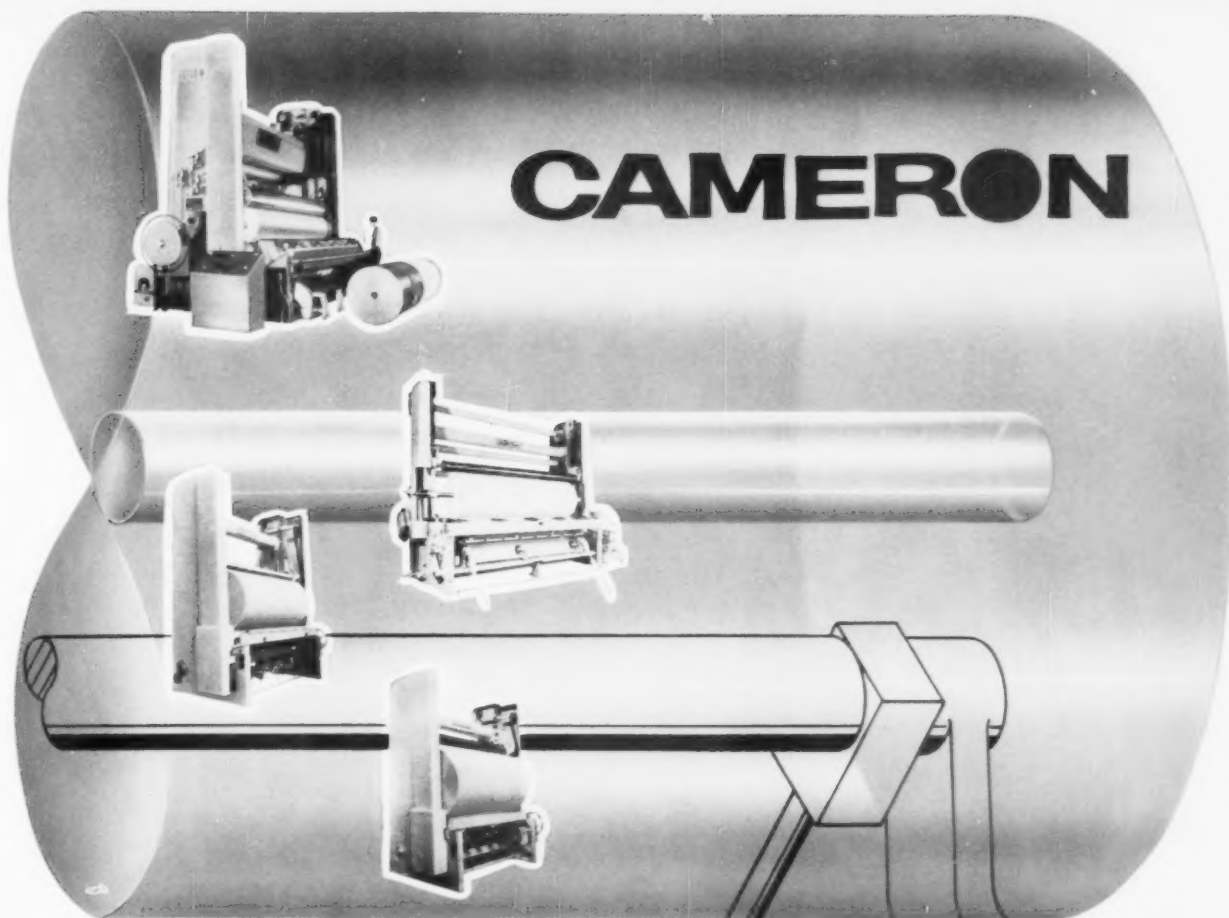
Cation-exchange resins were prepared by adding formalin to spent sulfite liquor (I) mixed with sulfuric or hydrochloric acid and heating under various conditions. The ion-exchange capacity of these resins was evaluated by the quantities of hydrochloric acid produced in 24 hr. of static calcium-hydrogen exchange in 0.1 N calcium chloride solutions under specified conditions. The resin showing the greatest ion-exchange capacity (0.75 mg. equivalents of calcium g. of resin) was prepared by adding 2.4 ml. formalin and 1.2 ml. hydrochloric acid to 30 g. of (I) and heating the mixture

12 hr. at 70°C. plus 12 hr. at 95°. After filtration, purification, and drying, a yield of 46% (based on total spent-liquor solids) was obtained. Attempts to increase the ion-exchange capacity of the resins by sulfonating the (I) gave insignificant improvements. C.L.B.

Hungarian Report Peptization

BUZAGH, ALADAR, and TAR, ILDIKO. Magyar Kém. Folyóirat 63, no. 4-5: 132-43 (1957). [In Hungarian; German summary] Bull. Inst. Paper Chem. 28: 491.

Lignin preparations obtained by extraction of rye straw, sprucewood meal, and peat with alcoholic sodium hydroxide and dioxane were peptized with sodium hydroxide. The curves obtained by plotting amount dissolved (in mg./100 ml.) against amount of starting material at various alkali concentrations showed the characteristic steep increase, distinct solubility maximum, more gradual decrease, and flattening out of normal peptization curves. For straw lignin at alkali concentrations above 5 millimoles liter, the peptization remained constant after reaching the maximum. The same phenomenon was observed on addition of various chlorides (lithium, sodium, potassium, and barium chlorides) to any of the preparations, but with a decrease in the amount peptized at the maximum. The methoxyl-group content of the dissolved portion was lower than that of the initial preparation and independent of the mode of preparation of the sols. The equivalent and micellar weights of the dissolved portions were independent of the sample size and only slightly dependent on alkali concentration along the constant region of the curves. The equivalent weights corresponding to the maxima, however, were greater and considerably dependent on both the amount of starting material and the alkali concentration. The coagulating power of electrolytes was greater (and hence the stability lower) for sols corresponding to maxima than for sols represented by the constant region of the peptization curves. In general, these results indicate that lignin behaves colloiddally similar to humic acid, regardless of its origin and mode of preparation, and that lignin is a heterogeneous substance both chemically and with respect to its dispersion characteristics. C.L.B.



ROLL EJECTORS

ROLL UNLOADING is easier, faster! Costly downtime between sets is minimized! Winder productivity is increased! That is why Cameron panel-board-operated pneumatic or hydraulic roll ejectors are being specified on all new Cameron mill type winders...or being ordered for application to winders now in service. Cameron roll ejectors are another example of the *inward excellence* of Cameron winders. This Cameron quality of *inward excellence* results in savings of time and money that continue to mount through years of economical, efficient, trouble-free service. Cameron specialists welcome any opportunity to show the way to dependable, low cost, high speed production of better rolls of any material.

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50 years devoted exclusively to the design and manufacture of slitting and roll winding equipment.



Quality Control at Eastex Assures a Better Product

Some things are BEST
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Wood fiber, as you know, begins to deteriorate the moment the tree is cut. So, the *sooner* the pulp log is put into production . . . the better the pulp quality. The systematic wood pile rotation at

Eastex is one of the many steps in a planned program of Quality Control . . . another reason why the name Eastex is highly regarded by those who demand a quality product.

A 750-foot flume divides the Eastex wood yard, enabling the mill to work from two piles rather than one. Under normal conditions, no log remains in storage more than 28 days.

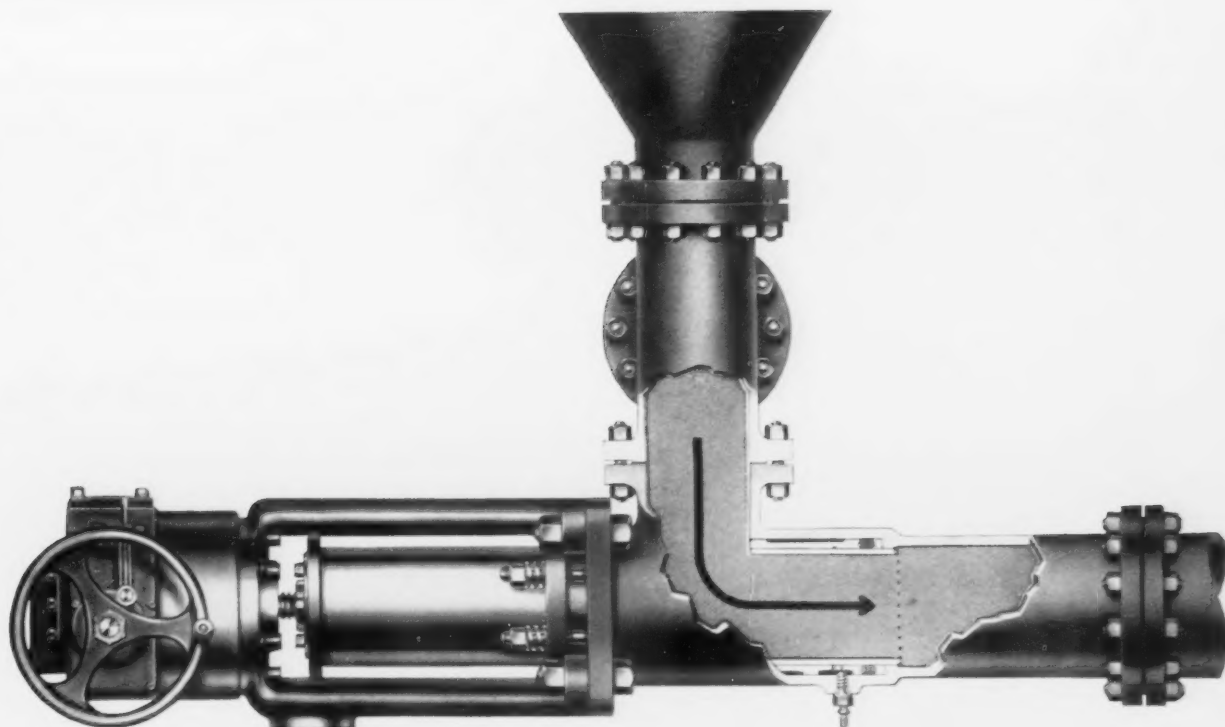


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Digesters blow fast and clean with YARWAY Seatless Blow Valves.

The hollow sliding plunger has no pockets where wood chips or tramp materials can hang up.

All Yarway Digester Valves have full pipe area, permitting fast discharge with minimum pressure drop. Comparisons show more discharge area . . . reducing blowing time, increasing number of cooks.

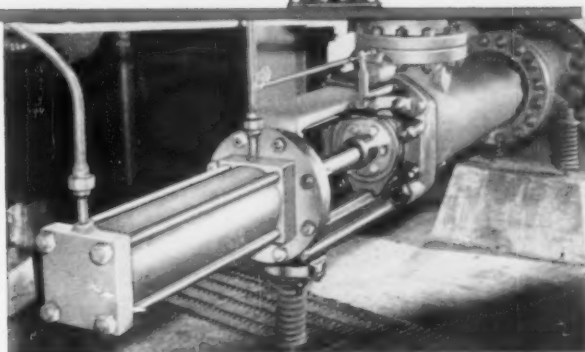
Scores of pulp mills report *lower operating costs and increased production* due to YARWAY Digester Blow Valves. One large mill found *savings in operation and maintenance the first year more than paid the cost of their 4 new Digester Valves!*

YARWAY Seatless Digester Valves can be furnished either with electric motor or hydraulic cylinder units. Both are remote controlled. Bulletin B-441 gives the whole story. Write for it.

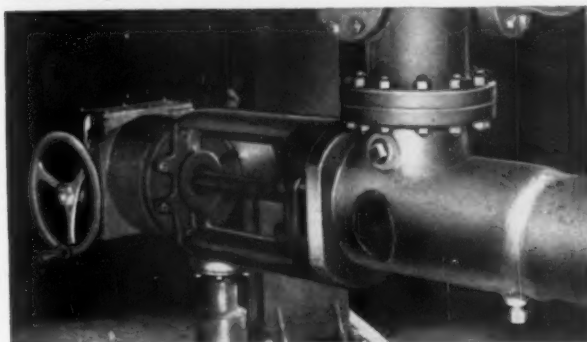
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BRANCH OFFICES IN PRINCIPAL CITIES



HYDRAULIC-OPERATED Yarway Digester Blow Valve—one of six installed at large North Carolina paper mill.



MOTOR-OPERATED Yarway Digester Blow Valve—one of eight installed at large Canadian paper mill.

YARWAY

... DIGESTER BLOW VALVES

...for superior paper
Use at no extra cost





















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There's an OK Brand product especially formulated for every paper mill operation requiring starches and adhesives ...and there's no extra cost for these top-quality OK BRAND products.

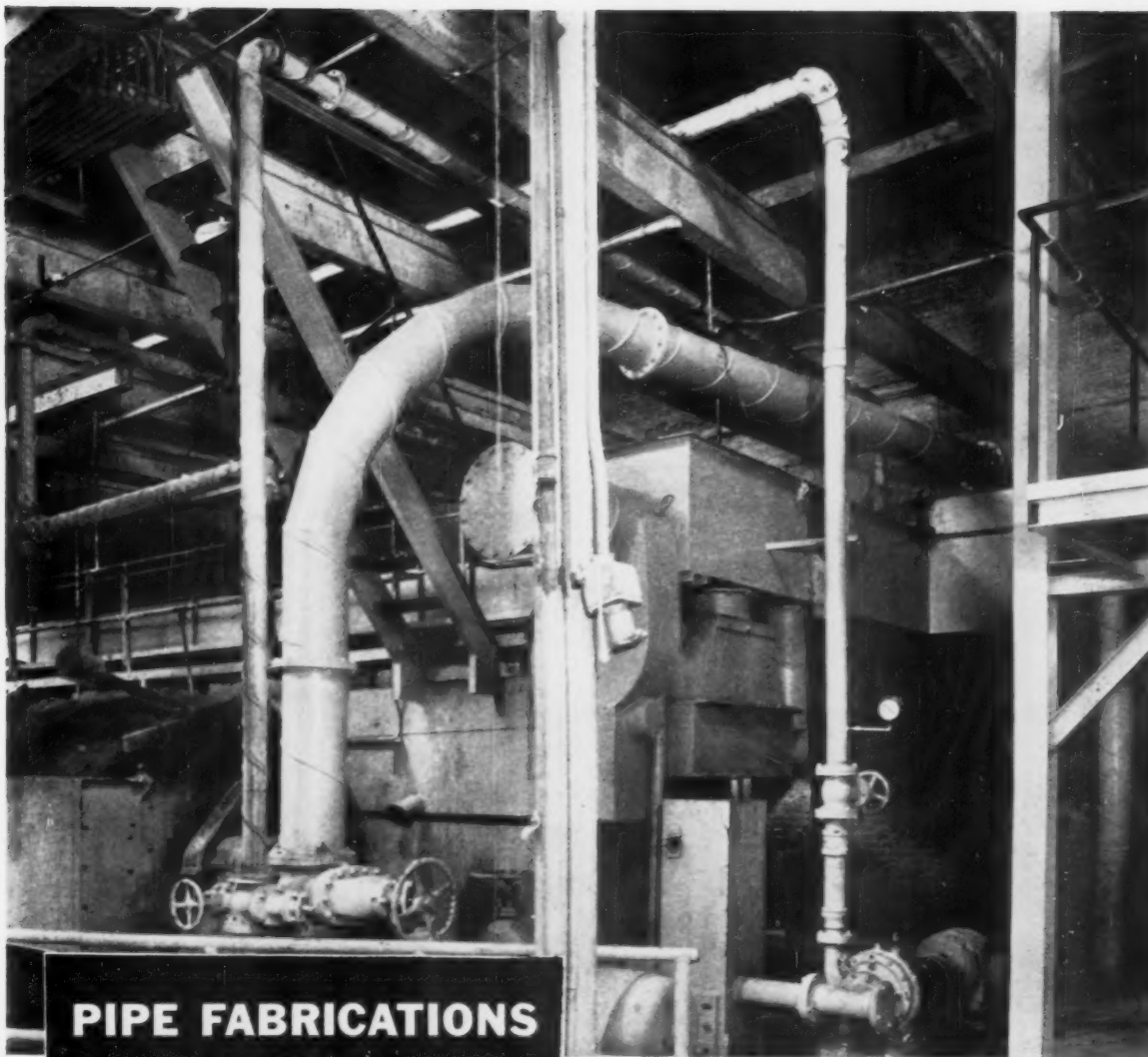
There's no extra cost for Hubinger Technical Service either. If your mill needs a special starch product, phone or write for a Hubinger paper-starch technical service representative. He will be glad to help you solve your starch problems. You'll find him OK too.

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PIPE FABRICATIONS
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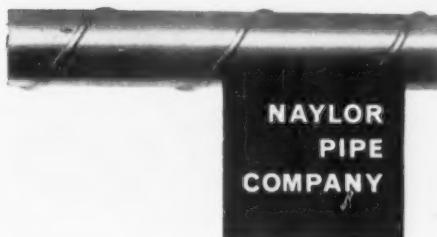
Piping layouts fabricated of Naylor Spiralweld give you distinct advantages—whether built of steel, alloys or stainless.

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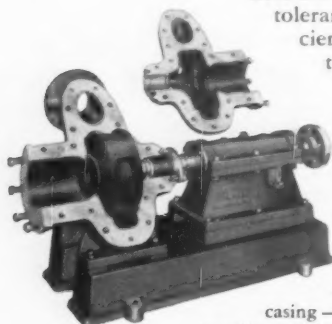
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"BUFFALO" PUMPS ASSURE UNINTERRUPTED FLOW OF HIGH CONSISTENCY PAPER STOCK

Operating engineers demand paper stock pumps that will stay on the job year after year without breakdown. "Buffalo" DS Diagonally Split-Shell Pumps are built to provide you with just this kind of dependable, long-lasting service.

The "Buffalo" designed enclosed, non-clogging impeller does not require close running tolerances for its high efficiency. This feature, plus the ample passages, insures a pump that is singularly free



"Buffalo" DS Pump, with upper half of casing removed, shows rugged construction. Note extra large inlet — heavy casing — shrouded, non-clogging impeller which requires no wearing plate.

from wedging and wear in service handling stock up to 5% and more.

The "Buffalo" diagonally split-shell design means you save maintenance time and dollars. Quick, easy inspection or removal of rotor, shaft, or bearings is provided, without disturbing the piping.

Mill men have learned to depend on "Buffalo" DS Pumps for maximum performance with minimum maintenance. You too will benefit by the many unique advantages of these reliable paper stock pumps.

For complete information, contact your nearest "Buffalo" representative or write for Bulletin 953-K.

"Buffalo" Pumps are famous for the "Q" Factor — the built-in Quality which provides trouble-free satisfaction and long life.

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A BETTER CENTRIFUGAL PUMP FOR EVERY LIQUID

THE SCOFIELD FELT CONDITIONING SYSTEM

ASSURES: added felt life increased machine speed lower water consumption ...reduced shut-down time

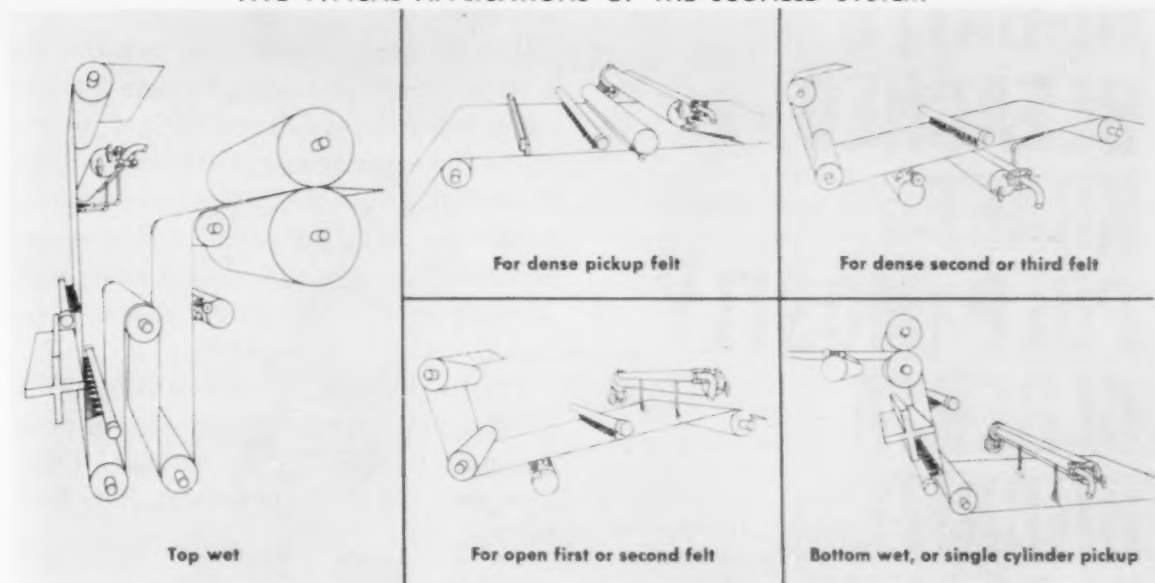
1 The Scofield FELT CONDITIONER maintains a clean, soft felt. A traveling high-pressure spray of controlled warm water with optimum velocity and density automatically cleans the felt with a minimum use of water.

2 The Scofield HIGH PRESSURE SHOWER is ideal for light to medium cleaning on all wet felts, and for cleaning on

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3 The Scofield VENTURI THROAT SUCTION, using low vacuum, removes dirt, paper fibers and water from all types of wet felts. Round monel bars provide better cleaning action and give a minimum of felt contact to insure longer felt life.

FIVE TYPICAL APPLICATIONS OF THE SCOFIELD SYSTEM



The Scofield System not only cleans the felt but also removes the water absorbed by it, continuously and across the full width of the machine.

The angle at which the spray of the Conditioner strikes the felt is determined to suit each installation. Whippers can be "backed off" and squeeze rolls eliminated because of the great dirt-loosening action provided by the Conditioner jets. Write for a free survey of your felt or wire conditioning problems.



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IRON AND BRASS WORKS
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CONCERNING
OYSTERS,
PEARLS
AND
ALBERTA
HI-BRITE
BLEACHED
KRAFT
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ALBERTA
HI-BRITE
BLEACHED
KRAFT
PULP)**

An oyster would be as dull as a clam if it weren't for a vital ingredient—nacre. Secreted by the oyster to surround any sea matter that enters its shell, this beautiful and miraculous substance forms into what we call a pearl. Its weight and shape determine its value. In very much the same manner, Alberta Hi-Brite, when added to your pulp, is the vital ingredient that determines the characteristics of excellence you desire.

Alberta Hi-Brite is the one bleached kraft pulp that gives your paper extra-high folding and tensile strength . . . plus formation and printability, qualities usually associated only with low-strength pulps. It lends opacity and cleanliness . . . makes your pulp white enough, bright enough for producing even the finest writing papers, thanks to a new *exclusive* multi-stage chlorine dioxide bleaching process. And, Alberta Hi-Brite has the unique ability to develop good characteristics *whether your product calls for light or extensive refining.*

To accommodate production facilities, the town of Hinton in Alberta, Canada was specially built. Here, Alberta Hi-Brite is produced at a capacity rate of 400 tons per day. Four million acres of adjacent forest reserves assure the mill a perpetual yield of spruce and lodgepole pine, the slow-growing softwoods famous for their longer, thinner fibres and superb pulping qualities.

For full information on how Alberta Hi-Brite can improve the quality of your product, write: Dept. PP-258, St. Regis Paper Company, 150 East 42nd Street, New York 17, New York.

St. Regis 
PAPER COMPANY
150 EAST 42ND STREET, NEW YORK 17, N. Y.

Pulp Sales Offices: NEW YORK • CHICAGO • SAN FRANCISCO • TORONTO • MONTREAL

February 1958 — PULP & PAPER



Shoes for where the wear occurs

For woodyard conveyors, A132WS with 6.050" pitch and 50,000 lb. average ultimate strength.



For long center transfer conveyors, A111WS with 4.760" pitch and 36,000 lb. average ultimate strength.



Right where the most sliding wear takes place, the new Rex Durobar WS Conveyor Chains are now reinforced with wearing shoes and rib. This adds life to the chain...lessens side play and side wear...minimizes repair and maintenance costs.

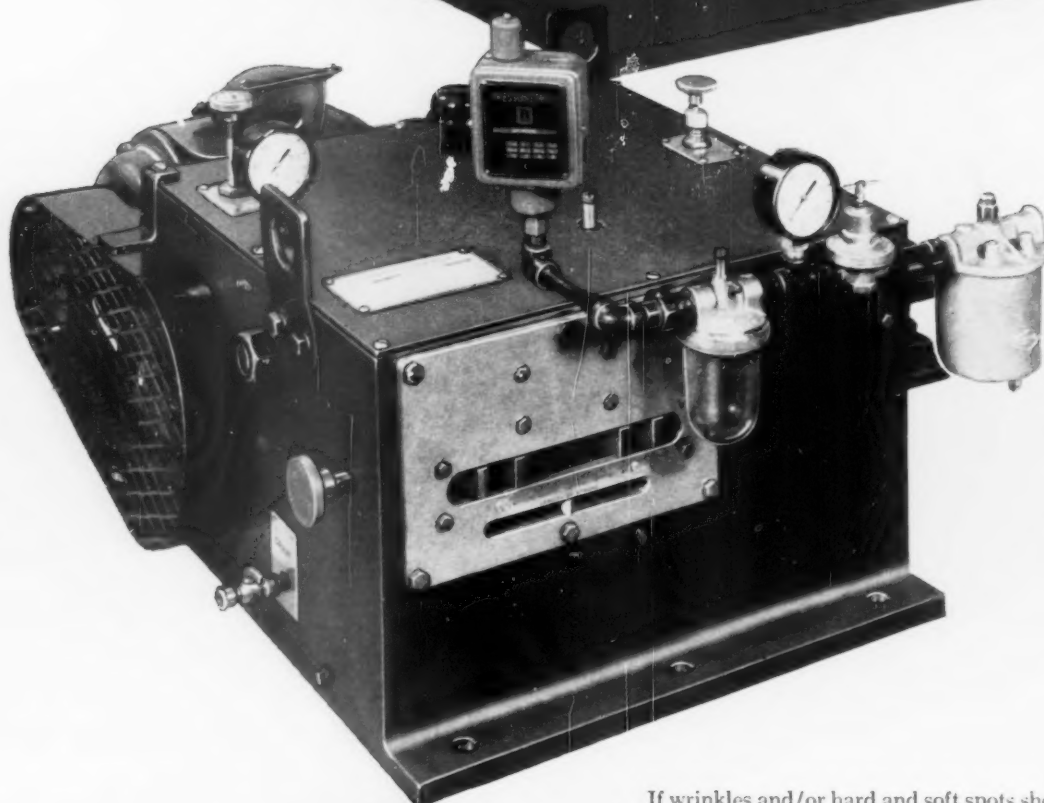
Rex Durobar WS comes in two sizes: A111WS for your longer center transfer conveyors and the even heavier A132WS for the toughest jobs like your woodyard conveyors. They're both great conveyor chains.

Consider these two Rex Durobar WS Chains for *any* conveyor application in the forest products industries where wear due to sliding may be a problem and longer chain life is desired. See your CHAIN Belt District Sales Office or Distributor or write for Bulletin 53-54. CHAIN Belt Company, West Greenfield Avenue, Milwaukee 1, Wisconsin.

CHAIN BELT COMPANY

Your ONE source for a complete line of power drive and conveyor chains, sprockets, roller bearings, flexible couplings.

need a
Hydroscillator?



If wrinkles and/or hard and soft spots show up in your rolls, you certainly do need a Hydroscillator. Install one on your rewinder and those troubles will vanish.

Ross Midwest Hydroscillators are hydraulically operated—can be set to deliver strokes of from $\frac{1}{2}$ " to $3\frac{3}{4}$ " as required. Oscillating speed from 0" to 24" per minute. Thrust up to 11,000 lbs. Effective on rolls of all sizes—even the very largest. Space required—very little.

A number of mills have installed Ross Midwest Hydroscillators and speak very highly of them. Perhaps you also could use one to advantage.

Circle No. 101 on Reader

Ross Midwest Fullon Corporation
Dayton, Ohio U.S.A.

Members of I.C. and Engineering Club, New York, N.Y.
Members of I.C. and Engineering Club, New York, N.Y.

Engineering at Ross Midwest Fullon Corporation • Frederick, N.Y. • Port Arthur • Vancouver

HYDRAFINE SUCCESS STORY



from sample can to carload in one year

Rarely has a new material been accepted so readily by paper and boxboard manufacturers as Hydrafine. Mills that tried sample cans last year are now ordering carloads of this new coating clay!

In *paper coating*, Hydrafine excels in developing high brightness and gloss. In *boxboard coating*, Hydrafine gives maximum brightness and covering power at low coat weights. A clay of *extreme fineness*, Hydrafine is spray-dried in the pre-dispersed form preferred by many manufacturers. Hydrafine is also available in lump and pulverized form.

Hydrafine is produced by Huber's patented Viscontrol[®] process, which eliminates viscosity fluctuations normally found in all kaolin crudes.

SPECIFICATIONS:

Particle size—90-94% finer than 2 microns

GE Brightness—86-87%

Controlled low viscosity, as in all other Huber clays.

Join the growing ranks of satisfied Hydrafine users: write for your sample today!



J. M. HUBER CORPORATION, 100 PARK AVENUE, NEW YORK 17, N. Y.
Clays and printing inks for the container industry.



Making the best defoamer is not enough...



It has to be the best for YOU

Every paper mill must control foam—with the greatest possible efficiency—at the lowest possible cost. And since each mill differs so widely from every other mill, Nopco's Paper Division spares no effort to make certain we have a defoamer—whether paste, liquid, or flake—that will effectively, economically control foam in *your* mill.

But making the best defoamers is not enough. Nopco's technical staff has the breadth of experience that can be invaluable to you in fitting the right de-

foamer to your special needs. These men will work with you in your own mill, examine samples of white water from your mill in our laboratories, or do both.

You can't be sure you've attained *maximum defoaming efficiency at the lowest cost per ton* until you have the best "team" in the business, the Nopco technicians, prescribe from the widest range of defoamers in the business—the Nopco defoamers. Write today for a free booklet on Nopco defoamers. Nopco Chemical Company, Harrison, New Jersey.



PLANTS: Harrison, N. J.
Cedartown, Ga. • Richmond, Calif.
London, Canada



New Fast's Breaking-Pin Jordan Coupling eliminates seizure and overload damage

Fast's Breaking-Pin Jordan Coupling reduces your maintenance costs . . . eliminates expensive shutdowns and production stoppages by protecting expensive equipment.

Fast's Breaking-Pin Jordan Coupling protects both motor and Jordan when the plug is inadvertently drawn too tightly, or when hard foreign matter enters the Jordan and jams the knives. Fast's breaking-pins fail only by torsional overload, never through shaft misalignment. By close control of a specially selected breaking-pin material and laboratory analysis, uniform breaking-pin performance is assured. When your Jordan shaft becomes overloaded or knives jam, the pins

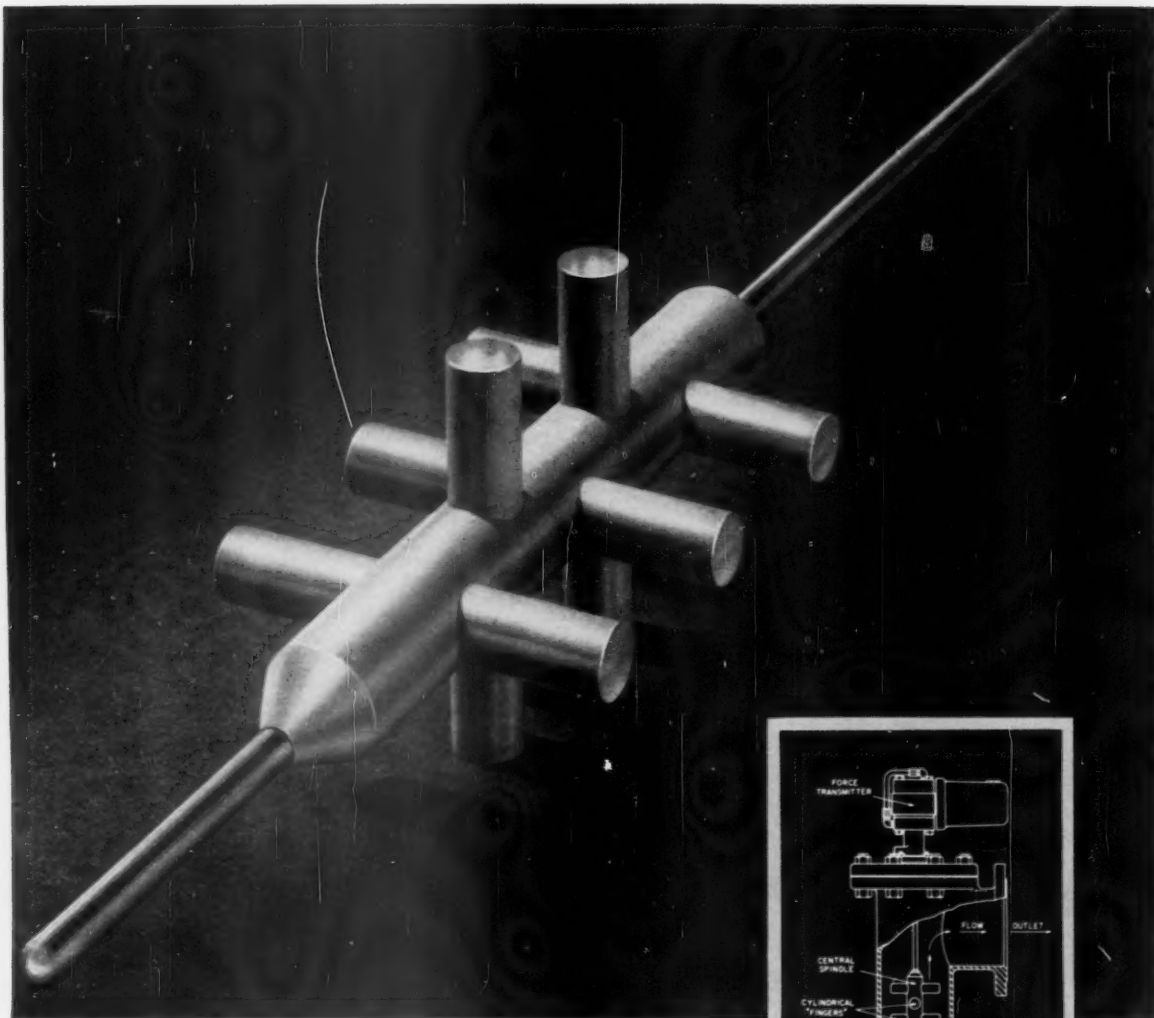
break at their calibrated center section. After failure, the two halves physically separate. The breaking-pins cannot fly out but are easily removed and replaced.

Koppers engineers will be glad to analyze your coupling problems, and specify a Fast's Breaking-Pin Jordan Coupling to meet your needs. Available in 9 standard sizes for shaft diameters from 2½ through 7 inches. Discover how you can save maintenance time and costs and avoid profit-consuming delays by writing: KOPPERS COMPANY, INC., Metal Products Division, Fast's Coupling Dept., 2708 Scott Street, Baltimore 3, Maryland.

Engineered Products
Sold With Service



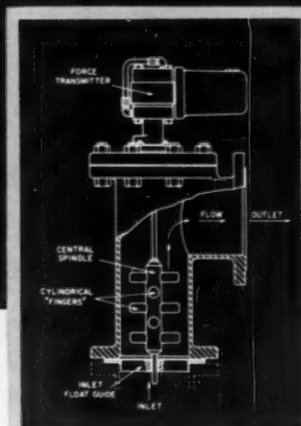
THE ORIGINAL
FAST'S Couplings



Sensitive fingers measure and control consistency

The unique object shown in the photo is a specially designed float used in the New F & P Consistency Regulator. This regulator *now* makes it possible to *continuously* measure and *automatically* control pulp and paper stock consistency . . . with complete immunity to velocity and freeness changes. Mounted directly in the process pipe line or in a sample line, this amazingly simple device measures stock consistencies in the range of 2% to 8% with an accuracy of $\pm 0.1\%$.

Get complete data and specifications by writing to Fischer & Porter Co. 2128 County Line Road, Hatboro, Pa. In Canada, write Fischer & Porter (Canada) Ltd., 2700 Jane Street, Toronto, Ontario.

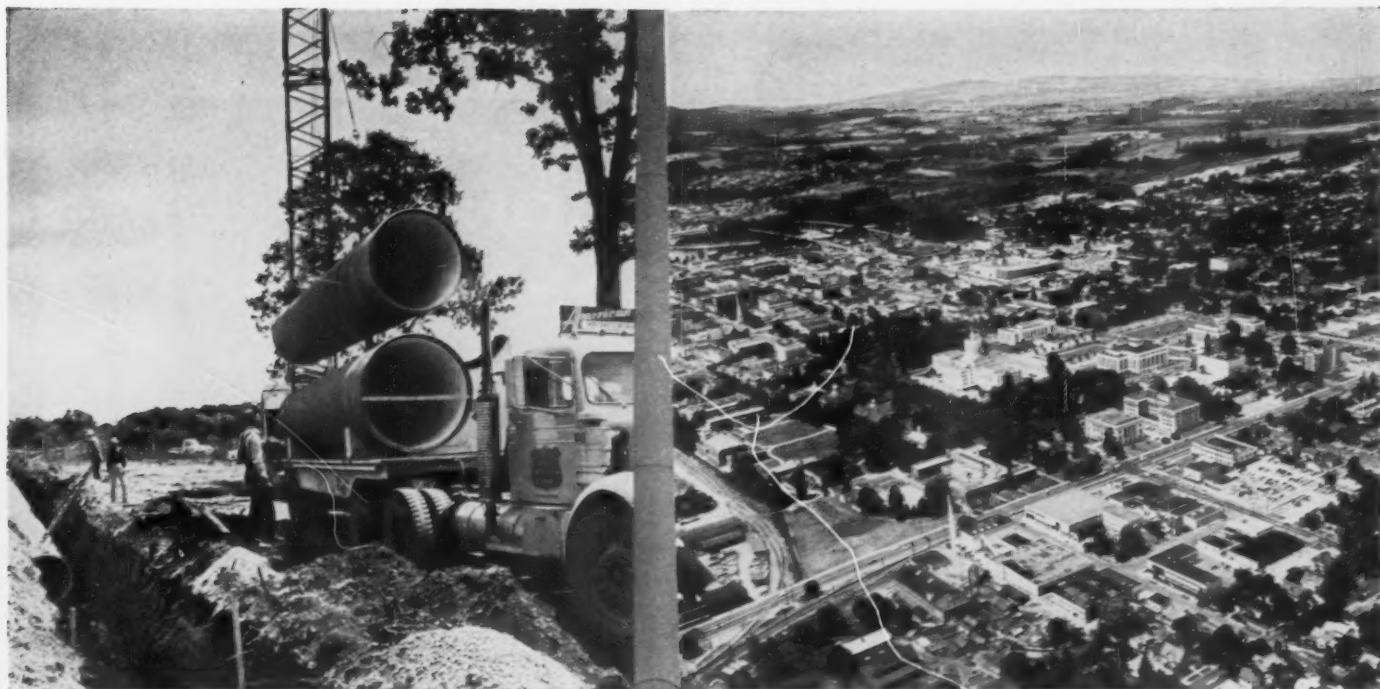


The many fingers projecting from the central portion of the float cause the flowing stock to be sheared or deformed about them. This kneading action of the fingers creates a force which is sensed and pneumatically transmitted by a force transmitter. The resultant force is proportional to stock consistency. Variations in flow rate over approximately 10 to 1 range do not affect the consistency reading.



FISCHER & PORTER CO.

Complete Process Instrumentation



New Salem pipe line to augment present system will add approximately 50 MGD capacity to city water supply system.

a line of growth...

for Oregon's capital city

*American Concrete Cylinder Pipe
is helping Salem, Oregon to grow*

A simple but important fact is that no city, however great its potential, can grow beyond the capacity and dependability of its main water supply system.

Recognizing this fact, and envisioning a population in 30 years that will require three times the maximum capacity of present water transmission lines, Salem, the capital city of Oregon, is carrying out a program designed to meet future needs.

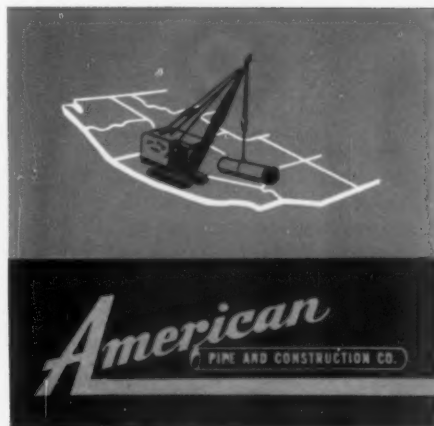
Under the direction of the City's Water Department Manager, John L. Geren, and the technical supervision of Consulting Engineers Clark and Groff of Salem, an 18-mile pipe line of 48" and 54" diameter American Concrete Cylinder Pipe is being installed by Lord Brothers, a general contracting firm of Portland, Oregon. This new line will triple the present capacity of the supply system.

The performance record of this type of reinforced concrete cylinder pipe has been so outstanding throughout the West that Salem can be confident that this water "growth line" will be giving efficient, economical service for many, many years to come.

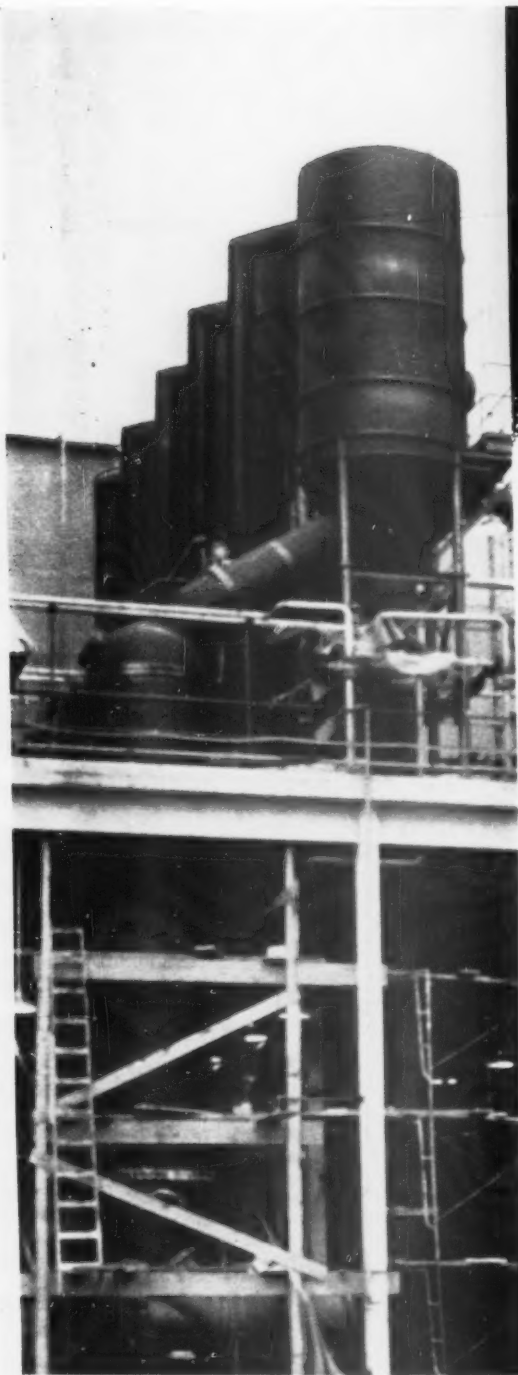
Strength, permanence, sustained high carrying capacity, and trouble-free service are characteristics of American Concrete Cylinder Pipe which make it the right pipe for this forward looking city.

When planning your future water "growth lines," look to American's quality pipe line products, extensive production facilities and half century of experience.

Ask for complete information concerning the particular class of pipe that will meet your design requirements.



Los Angeles:
P.O. Box 3428, Terminal Annex • LOrain 4-2511
Hayward:
P.O. Box 630 • JEFFerson 7-2072
San Diego:
P.O. Box 13 • CYpress 6-6166
Phoenix:
2025 South 7th St. • ALpine 2-1413
Portland:
518 N.E. Columbia Blvd. • BUTler 5-2531



All-Stainless **CONKEY EVAPORATOR**

goes to work on MgO Process
at Weyerhaeuser

- Continuous heat transfer
obtained with scale forming liquor
- Complete chemical
and heat recovery
effected from all
waste liquor

This Conkey® sextuple effect, forced circulation evaporator is now in regular operation on waste sulphite liquor from the MgO process at the new 400-ton Cosmopolis, Washington mill of the Weyerhaeuser Timber Company.

In order to insure continuous evaporation of this scale forming liquor, with minimum maintenance, the unit was fabricated of all-stainless steel. It is also designed so that continuous sextuple effect operation is maintained even when bodies are cut-out for cleaning.

This is another example of how Conkey Evaporators are engineered to provide economical, *continuous* performance at a high rate of heat transfer. They are fabricated and erected to exacting requirements in CB&I's four strategically located plants.

Our facilities include design, fabrication and erection facilities for steel plate and special, clad or partially clad, structures for the pulp and paper industry. Write our nearest office for complete information.



Chicago Bridge & Iron Company

Atlanta • Birmingham • Boston • Chicago • Cleveland • Detroit • Houston
New Orleans • New York • Philadelphia • Pittsburgh • Salt Lake City
San Francisco • Seattle • South Pasadena • Tulsa
Plants in BIRMINGHAM, CHICAGO, SALT LAKE CITY and GREENVILLE, PA.

Weyerhaeuser's all-stainless, sextuple effect Conkey Evaporator is equipped with all controls for full automatic and continuous operation. Two other Conkey Evaporators are in operation in the same process at the company's Longview Mill.

PP-21

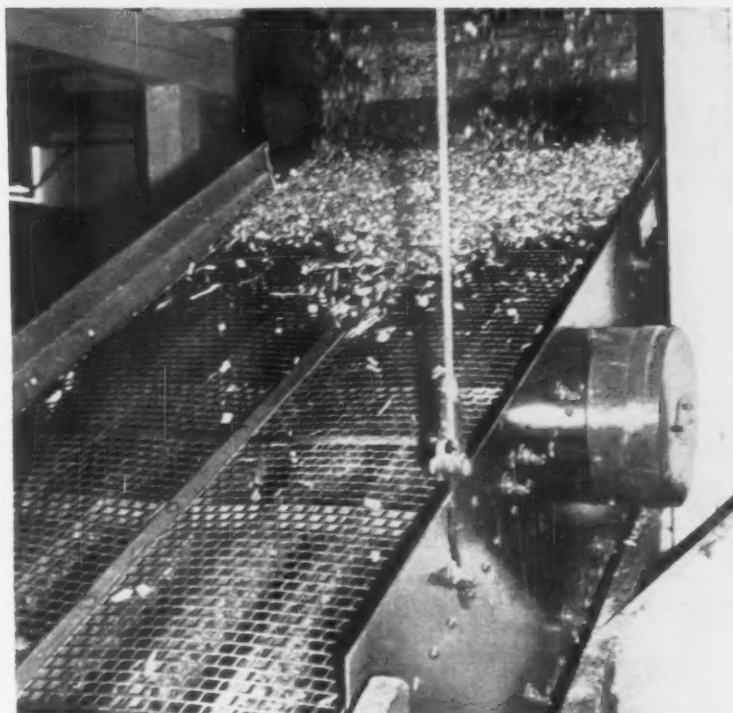
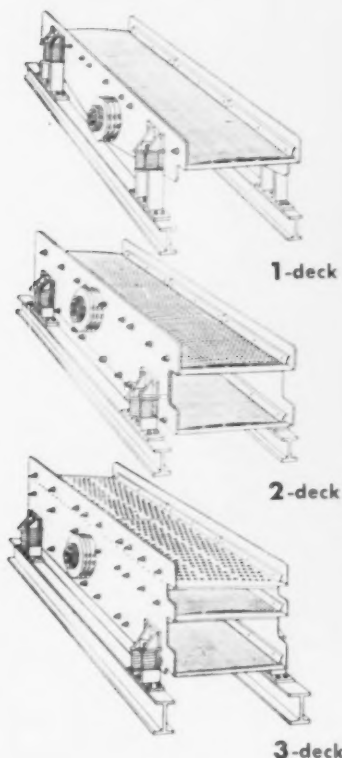
LINK-BELT

CA

Concentric Action

Vibrating Screens

for high volume chip cleaning



Link-Belt CA double deck vibrating screen separating oversized chips, slivers and sawdust from wood chips. Note how quickly the chip load is cleared from the top deck.



Vibrating mechanism is grease lubricated and has two high capacity, self-aligning roller bearings. Efficient, frictionless labyrinth seals exclude dirt and abrasive dust. Spring-controlled centrifugal type counter-weight eliminates excessive resonant motion when starting and stopping.

Powerful screens thoroughly separate sawdust and slivers

For speedy, thorough cleaning of chips, the trend is to Link-Belt Concentric Action Vibrating Screens. Circular vibrator motion imparts lively tumbling action which is uniformly distributed across every square inch of the screen deck. The bed stratifies rapidly—every particle is accurately sized . . . slivers and sawdust sharply separated. Low maintenance costs are also winning

preference for CA screens among pulp and paper men.

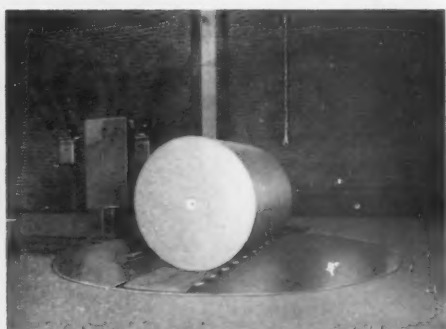
There's a size for every job—4 to 6 ft. wide by 8 to 14 ft. long, in deck arrangements as illustrated. Your nearby Link-Belt office has full information. Send for Book 2554. Write for your copy.



LINK-BELT

VIBRATING SCREENS

LINK-BELT COMPANY: Executive Offices, Prudential Plaza, Chicago 1. To Serve Industry There Are Link-Belt Plants and Sales Offices in All Principal Cities. Export Office, New York 7; Canada, Scarboro (Toronto 13); Australia, Marrickville, N.S.W.; South Africa, Springs. Representatives Throughout the World.



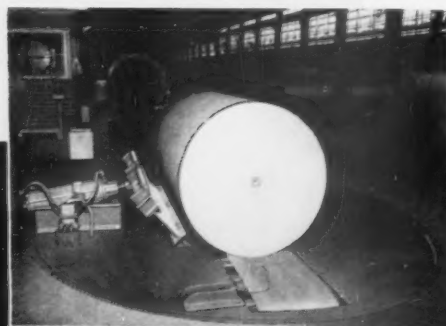
Roll comes from winder dump on to EPCO turntable. Begins cycle.



Roll passes thru strapping machine for automatic banding at both ends.



Automatic weighing is accomplished as roll passes scale.



Final turntable ejects roll either to warehouse or to loading platform.

PAPER ROLLS

- HANDLED
- STRAPPED
- WEIGHED
- DISCHARGED

**For SHIPPING—
AUTOMATICALLY!**

**THIS EPCO AUTOMATED SYSTEM
CAN CUT MILL ROLL HANDLING
COSTS UP TO 50%**

Automation for paper roll handling! And think of the savings! From mill to storage or freight car without a hand touching it.

This is what the EPCO Automation system is doing in the installation you see here. *It saves countless dollars every day by cutting the handling cost as much as 50%* depending upon existing plant operations. Pays for itself in an amazingly short time. More than that, EPCO Automation is engineered for the future. Standard installations will handle rolls of varying lengths and diameters in any sequence. The conveyor is built so that it is accessible and easy to repair if service is needed. Completely sealed bearings limit lubrication to drives and take-up fittings. Electrical controls are centralized for easy operation.

This cost cutting system is designed and built to make your paper mill more profitable. Check into EPCO Automation today. We'll be glad to talk your problem over with you.

GET ALL THE FACTS NOW!

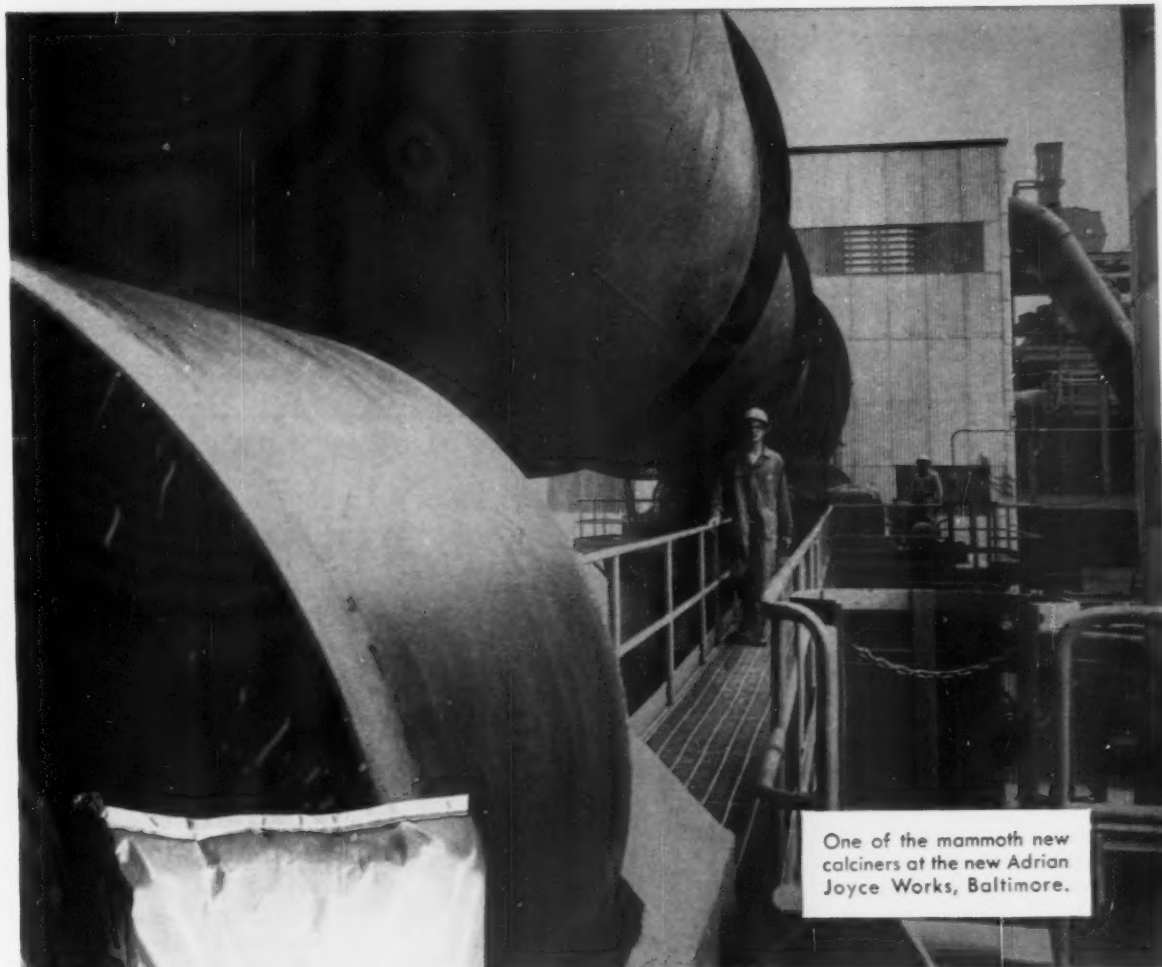
Send for our new Bulletin which describes EPCO Automation along with other EPCO Roll handling systems and equipment. Whatever your roll handling problem may be, EPCO can help you solve it efficiently and economically.



**ENGINEERING
PRODUCTS
COMPANY, Inc.**

122-124 South Michigan Avenue • Chicago 3, Ill. • WAbash 2-8364
Export Division: Carl O. Goettsch, 2909 Carew Tower, Cincinnati 2, Ohio

From the industry's most advanced pigment plant comes...



One of the mammoth new calciners at the new Adrian Joyce Works, Baltimore.



ZOPAQUE[®] **TITANIUM DIOXIDE**

... the whitest white pigment available!

You can count on Glidden to supply your complete titanium dioxide requirements. Our new Adrian Joyce Works at Baltimore more than doubles the available supply of Zopaque Titanium Dioxide. Further plant expansions are now being made to help meet your growing needs in the years to come!

Zopaque gives you these advantages:

- Highly accelerated dispersion rate.
- Exceptional hiding power.
- Outstanding gloss and color retention.
- Low reactivity.
- Rutile and Anatase grades.

By the makers of SUNOLITH Lithopones and EUSTON White Lead

THE GLIDDEN COMPANY

Chemicals - Pigments - Metals Division

BALTIMORE, MARYLAND • COLLINSVILLE, ILLINOIS • HAMMOND, INDIANA • SCRANTON, PENNSYLVANIA

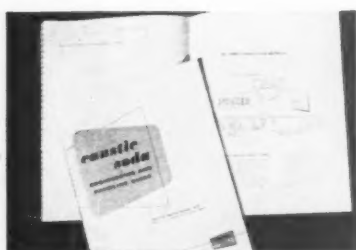
PULP & PAPER — February 1958



BRIEFS

for buyers of

Caustic Soda Sodium Chlorate



Here's newest data on caustic soda handling

This new bulletin can help you handle and store liquid caustic soda safely, efficiently, and with minimum risk of iron contamination.

Its 40 pages include large, detailed diagrams of equipment; a section on materials of construction; recommendations for unloading, dilution, piping, and storage; and a section on safety precautions and first aid.

For a copy, check the coupon for Hooker Bulletin 102, *Caustic Soda Engineering and Handling Guide*.

Helpful hints for buyers



In case you haven't received a copy, here's another bulletin packed with useful information on caustic soda.

This one is edited especially for buyers. It's pocket-size for ready reference. Besides data on forms and grades of Hooker caustic soda, it includes facts on the economics of 50% vs. 73% liquid solutions; capacities of tank cars and other containers; and useful

shipping information.

For a copy, just check the coupon for the *Caustic Soda Buyer's Guide*.

Chlorine dioxide bleaching

Keeping in step with the fast-moving trend toward chlorine dioxide bleaching, we're happy to offer you complete service on sodium chlorate—the raw material you need for generating chlorine dioxide.

We're ready to serve you now—with fastest delivery in the East and South from our two Oldbury Products plants at Niagara Falls, N. Y., and Columbus, Miss.

The product, Oldbury® sodium chlorate, leads all brands in volume purchased and is dependably of 99% min. purity.

You get skilled technical help when you need it, regardless of the process you use.

May we spell out for you how this kind of service—backed by more than 50 years of serving and growing with the pulp and paper industry—can help you insure successful chlorine dioxide bleaching?

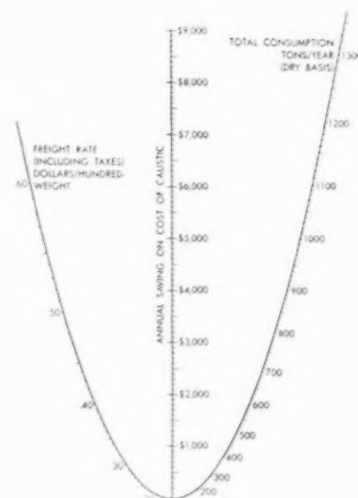
For details, just write *Hooker Electrochemical Company* at the address below.

50% to 73%— some save, some don't

To estimate quickly whether you can save by switching from 50% to 73% liquid caustic soda, simply draw a line on this nomograph.

Start at your freight rate and draw to your annual consumption in tons, dry basis. Your approximate savings on freight will appear where you intersect the center line.

From this figure, subtract annual depreciation for dilution equipment.



(We'll be glad to advise you on cost of this equipment.)

If you still show a saving, it would be wise to consider the big switch seriously.

For more facts on the economics of 50% and 73% caustic, check the coupon for a copy of our pocket-size *Caustic Soda Buyer's Guide*.

Check items you'd like to receive:

- ☐ *Caustic Soda Engineering and Handling Guide*
- ☐ *Caustic Soda Buyer's Guide*
- ☐ Sodium Chlorate (technical data)

Need information on these other Hooker chemicals used in the pulp and paper industry? Check here for technical data sheets:

- ☐ Chlorine
- ☐ Muriatic Acid
- ☐ Sodium Sulfide
- ☐ Sodium Sulfhydrate


Clip and mail to us with your name, title, company address.



HOOKER ELECTROCHEMICAL COMPANY

1902 FORTY-SEVENTH STREET, NIAGARA FALLS, N. Y.

Niagara Falls Tacoma Montague, Mich. New York Chicago
Los Angeles Philadelphia Worcester, Mass.
In Canada: Hooker Chemicals Limited, North Vancouver, B. C.



**Another mill stays
free of line clogging
with these Crane
pulp stock valves**

This scene is in a leading Southern kraft mill. The valves—10- and 18-inch Crane pulp stock valves—are on lines from brown chest to screens.

These valves were installed 15 years ago and have been operated approximately once a week since then. More important, they demonstrated to the mill management that clogging of stock lines due to valve leakage and entrapment of fibers can be avoided completely.

So well have these Crane valves performed that the mill standardized on them several years ago. As a result, it has since had no problems with valve leakage or stock line clogging.

The unmatched efficiency of Crane pulp stock valves

is in their highly developed "combing" and shearing-action seating design. There's no jamming of fibers under the disc; the Crane knife-edge cuts through them to seat tightly. Crane no-bonnet design leaves no place for pulp impaction in the valve body.

Ask for Circular AD-2156

This circular will show you quickly why Crane valves work where others fail. It also gives specifications on the full Crane line, including the all-new stainless steel, short face-to-face pattern. Ask your Crane Representative for a copy or write to address below.



CRANE VALVES & FITTINGS

PIPE • PLUMBING • KITCHENS • HEATING • AIR CONDITIONING

Since 1855—Crane Co., General Offices: Chicago 5, Ill.—Branches and Wholesalers in All Areas



I tell you this is the best way to prepare stock for KRAFT PAPERS

You got rocks in your head... let me show you how you ought to do it!

But There's one thing they agree on:
YOU CAN DO IT BETTER with E.D. Jones®

You may favor one way of preparing stock for kraft papers — the fellow in the next mill may be just as strong for another — even on the same type of furnish.

But whatever system you choose, you'll both find Jones quality equipment to fit it... and to help you produce better paper, more economically, and with a minimum of operating cost, maintenance, and down-time.

Only Jones is equipped to supply all types of stock preparation machinery... pulpers, beaters, disc and conical refiners, and screens.

So Jones is not limited to any one system. Whatever your stock preparation problem, you can count on your Jones representative for sound and unbiased recommendations, backed by Jones' reputation for quality and performance and more-than-a-century of paper mill know-how.

*Ask your **E.D. Jones** man first...*

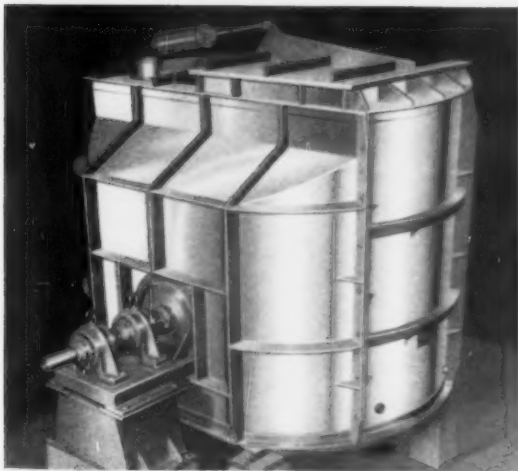
E. D. JONES & SONS COMPANY
 Pittsfield, Massachusetts
 BUILDERS OF QUALITY STOCK PREPARATION MACHINERY

In Canada:
The Alexander Fleck, Ltd.
 Ottawa

Export Agents:
Castle & Overton, Inc.
 New York 20, N. Y.

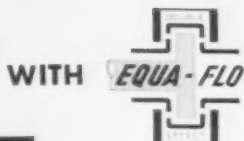
Foreign Licensees: FRANCE, Batignolles-Chatillon • SPAIN, Gabilondo

ED Jones HI-LO PULPER



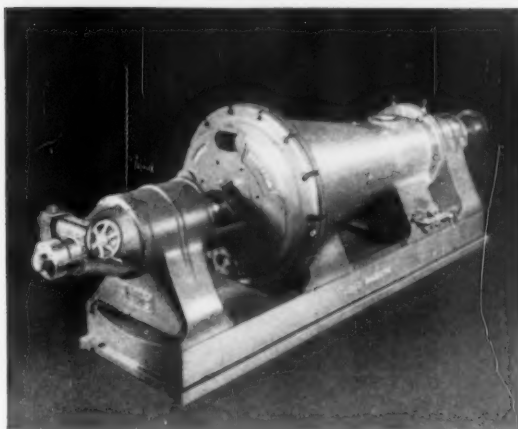
Engineered to eliminate the compromise imposed by conventional single-rotor pulpers between maximum circulation and complete defibering, the HI-LO employs two separately powered rotors to provide maximum pulping and complete defibering, with significant savings in time and power. For details, ask for Bulletin EDJ-1063.

ED Jones DOUBLE-D REFINER



The only unit of its kind with two stages of refining in one machine, the Jones Double-D can actually do twice the work of conventional refiners because it has double the refining area — 2200 square inches in the 42" model; produces stock of equal or better quality at a considerable saving in operating cost. Ask for Bulletin EDJ-1083.

ED Jones MAJESTIC JORDAN



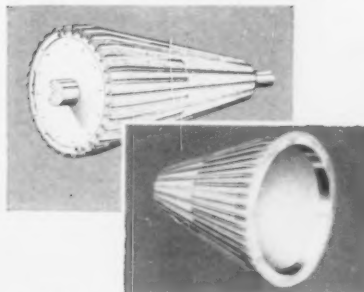
One of the most popular sizes in the Jones "family" of Jordans, the Majestic is second in size only to the Jones Leviathan. It offers efficient use of horsepower in quantity production, a wide range of tackle and a choice of handwheel, worm gear or Accru-Set controls.

All Jones Jordans have split small heads and self-contained bearings for quick, easy dismantling and reassembly.

ITALY, de Bartolomeis • JAPAN, Mitsubishi

REVOLUTIONARY ADVANCE

In Jordan Plug Design



In addition to the strongest and most adaptable solid plug ever developed, Adapta-Plug is available in sleeve form for easy, economical conversion of old worn plugs.

ED Jones Adapta-Plug

Completely handless, easily stripped and filled. Inverted-wedge-type slots hold bars firmly in place, eliminate hazards of slot wear and corrosion. Any desired edge available. Write for Bulletin EDJ-1094.

Complete ONE-PIECE assembly to fit shell of any Jordan



ED Jones FULBAR SHELL FILLINGS

Ideal filling for any Jordan, new or old, of any make. No keys or wedges needed. Easy to grind in. Many other advantages. Write for Bulletin EDJ-1094.

E. D. JONES & SONS COMPANY
Pittsfield, Massachusetts

Builders of Quality Stock Preparation Machinery

In Canada: The Alexander Fleck, Ltd., Ottawa

Reliance Drive at Mead



Mead Corporation supercalender located in their Kingsport, Tennessee plant. Inset shows the 500 hp. main drive motor, one of the three motors used in Reliance Supercalender Drives.



RELIANCE ELECTRIC AND
ENGINEERING CO.

Dept. 182A, Cleveland 17, Ohio
Canadian Division: Toronto, Ontario
Sales Offices and Distributors in principal cities

A Reliance Supercalender Drive keeps downtime for threading to a minimum for Mead by maintaining stable threading speeds. Threading-up is a fast and safe operation because the Reliance Drive accurately holds the 40 fpm. threading speed.

This accurate speed control is not limited to low speeds. The Reliance Supercalender Drive regulates speeds exactly through the entire speed range of the machine, all the way up to the 2000 fpm. top speed.

Other features of Reliance Supercalender Drives include break-away torque for smooth starts, precise tension control for good paper quality and good roll taper, wind and unwind from top or bottom of roll. These and many other features are explained in the Reliance Supercalender Drive Bulletin L-2507. Write for your copy today. L-1875

Production of Bleached Sulphate Pulp Doubled at Dryden's Ontario Plant

Dryden Invites You to Order a Trial Car of Bleached Sulphate Today

Dryden's Ontario plant is more than "in production." It has already doubled its manufacturing facilities. This expansion will help answer the new demands arising from the favorable response to our Northern Bleached Sulphate Pulp during the first few months.

Laboratory reports by leading paper makers are unanimous in their endorsement of this pulp. They

find it the equal of the finest grades on the market.

Why not order a shipment of the Bleached Sulphate now? You will then be assured of a dependable North American source of this quality pulp...*the finest you can get* for your money.

A year from now you will be glad you ordered a trial car *today*.

We invite your comparison.

Dryden
Paper Company, Limited

Dryden, Ontario, Canada

NORTHEASTERN PAPER SALES, INC.
400 Madison Avenue
New York 17, N. Y.

20 North Wacker Drive
Chicago 6, Ill.

ANGLO PAPER PRODUCTS, LTD.
2055 Peel Street
Montreal 2, Quebec

67 Yonge Street
Toronto 1, Ontario

at last...more "cookable" chips!



There's one sure way to get 'em with . . .
OK BATTLE AXE CHIPPER KNIVES.

They always deliver maximum production of
uniform, cookable chips with an absolute minimum
of costly splinters, slivers and dust.

"OK BATTLE AXE" Chipper Knives are made of special high alloy steel, hardened evenly in electrically-controlled furnaces, then carefully tempered, ground and honed. The result is a dependable, durable blade with an extra-keen edge that gives you long, economical runs between regrindings, while improving overall chip quality. "OK BATTLE AXE" knives stubbornly resist cracking or shelling, even under high impact loads.

"OK BATTLE AXE" Chipper Knives are made to fit all paper mill and sawmill chippers. Many sizes stocked in Cincinnati, Ohio, and Portland, Oregon,

. . . or order to your specifications. Complete records are kept to assure exact duplication of original orders without delay. Ohio Knife Co. field service men, experienced in chipping operations, can be sent to your mill to analyze your particular chipping problems and recommend correct tempers, bevels, etc. to best suit the job. No obligation, of course.

For complete information on "OK BATTLE AXE" Chipper Knives, write Dept. 52—F.

THE OHIO KNIFE CO.

CINCINNATI 23, OHIO

MANUFACTURERS OF OK HOG KNIVES, VENEER KNIVES, CHIPPER KNIVES, PLANER KNIVES.

FASTER WET STRENGTH...



SCRIPTITE 40

a new concept in cationic urea-formaldehyde paper resins

In mill trials on unbleached and bleached kraft towelling, napkin stock and facial tissue, Scriptite 40 demonstrates a high degree of wet strength, off-the-machine and after natural aging. With minimum resin add-on high wet strength values are produced. Scriptite 40—a cationic urea-formaldehyde—also improves dry tensile, stiffness,

mullen, wet rub resistance, folding endurance, internal sizing and pick resistance.

Evaluate Scriptite 40 in your operations. For samples, technical data and complete technical assistance, write to Monsanto Chemical Company, Plastics Division, Paper Resins Dept., Room 1907, Springfield 2, Mass.

*SCRIPTITE:
REG. U. S. PAT. OFF.



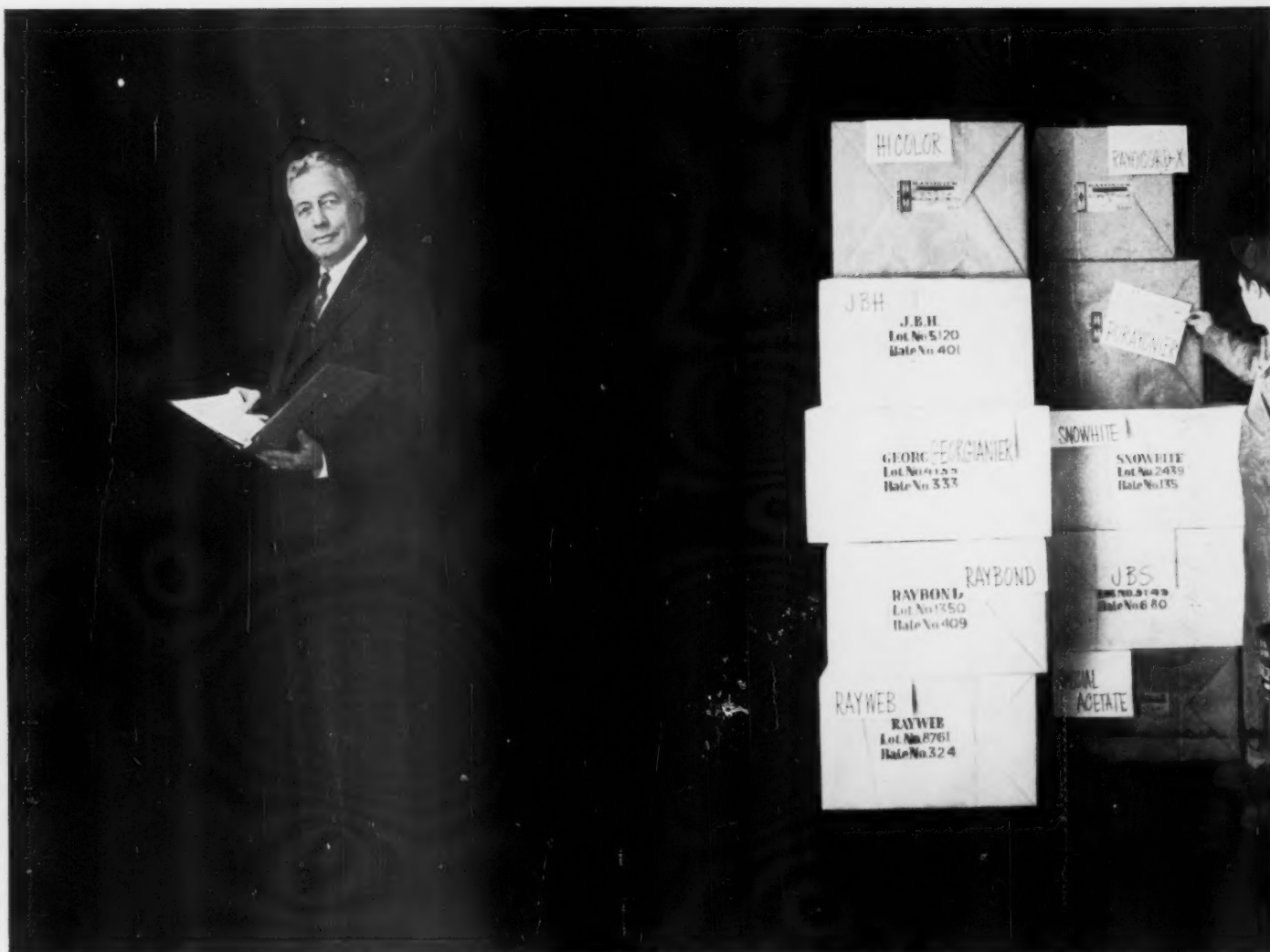
The Monsanto Line of Paper Resins also includes:

SCRIPTITE 54 ... for outstanding water resistance and both wet and dry rub resistance.

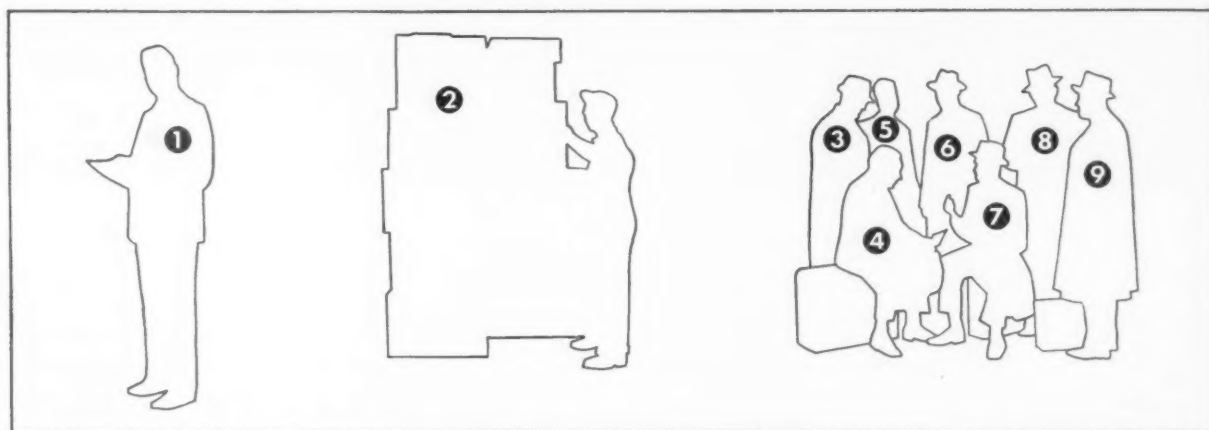
SCRIPTITE 52 ... in combination with formaldehyde to give water resistance to folding boxboard and to jute liner.

SCRIPTITE 50 ... for unsurpassed printability and improved surface characteristics on boxboard.

SCRIPTITE 33 ... a melamine wet-strength resin.



THE POLICY, THE PRO to give Rayonier wood pulp custo



① Rayonier's policy-making president, Clyde B. Morgan. Rayonier pulps ② the most complete line of wood pulps and celluloses offered by any producer to the paper industry . . . bleached sulfates and sulfites, hardwoods and softwoods, from British Columbia, the Pacific North-

west and the Southeast. On "special assignment" to you: Rayonier's wood pulp sales team. ③ George E. Durkee ④ Ted D. Bielfeld ⑤ Arthur B. McCormick, Jr. ⑥ S. Earl Church ⑦ Dan McGillicuddy, Jr. ⑧ W. H. Backer and ⑨ George B. Creamer.



DUCTS AND THE TEAM

mers an edge on their competition

RAYONIER POLICY assures you that we are interested in your business. We are a major supplier of wood pulps—and we intend to remain a major factor in the industry . . . today, tomorrow and in the years ahead. We can do so only by being of continuing service to you.

As proof: we have new, enlarged production facilities in the Southeast, the Pacific Northwest and British Columbia. You have direct manufacture contact; our own sales force, supported by Rayonier Research and Technical Services, calls on you. Above all, we are first a *basic raw material supplier*.

RAYONIER PRODUCTS cast us as the only world producer of complete lines of quality bleached wood pulps and chemical celluloses.

But we consider that no cause for complacency. New pulps like JBH — our new sulfate hardwood — obsolete the old and offer paper makers new profitable opportunities.

RAYONIER'S TEAM of trained wood pulp salesmen is on "special assignment" to you, to help you derive full benefits and profits inherent in every Rayonier wood pulp. Experts all, these men know your industry. They look for your repeat orders . . . and the long-term relationship that is more rewarding to us and to you.

Call on us. Let Rayonier's unique policy, products and team give you *many* an edge on your competition.

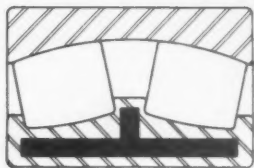
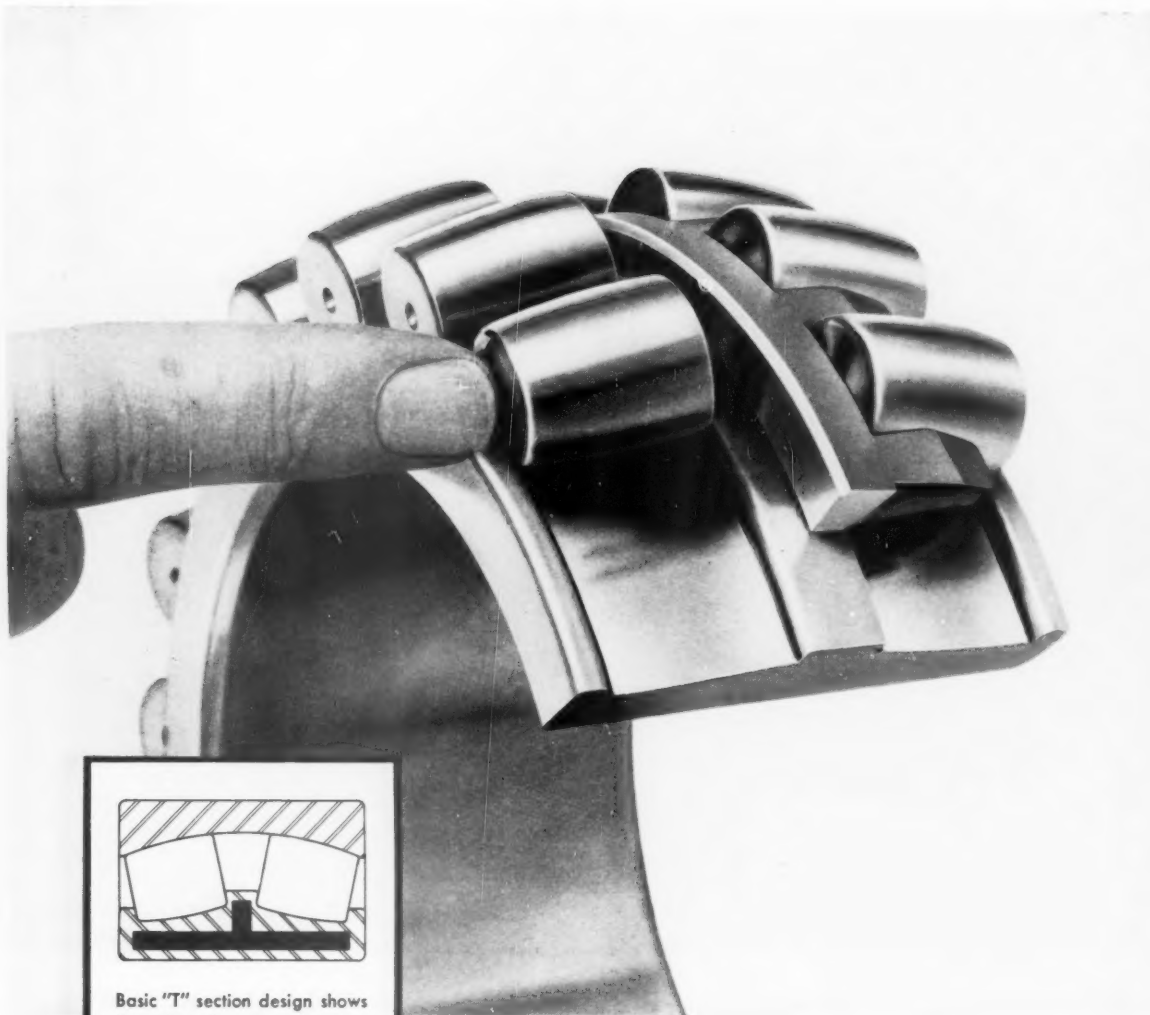
RAYONIER



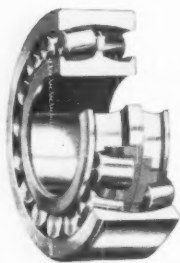
NATURAL RESOURCES CHEMISTRY

Rayonier Incorporated, Executive and general sales offices:
161 East 42nd Street, New York 17, N. Y.

Mills: Fernandina Beach, Fla.; Jesup, Ga.; Hoquiam, Port Angeles and Shelton, Wash.; Port Alice and Woodfibre, British Columbia.



Basic "T" section design shows "backbone" construction that insures positive roller guidance and stability without skewing under all load conditions.



For roller stability... *there's nothing like* *"the bearing with the backbone"*

The only *positive* way to guide rollers is by an integral center guide flange—backbone of the *Torrington* Spherical Roller Bearing. No floating ring can match it for stability under heavy radial and thrust loads.

This "bearing with the backbone" insures true rolling motion . . . prevents stress concentration . . . means minimum friction. It makes possible open-end cage design, too, with no shrouds to impede circulation of lubricant to bearing contact surfaces. There is less heating and more positive lubrication.

The integral center guide flange is adapted from the same principle used in the design of *Torrington* Tapered Roller Bearings. This refinement is typical of *Torrington's* uncompromising engineering that assures you the ultimate in bearing performance. **The *Torrington* Company, South Bend 21, Ind.—and Torrington, Conn.**

TORRINGTON BEARINGS

District Offices and Distributors in Principal Cities of United States and Canada

SPHERICAL ROLLER • TAPERED ROLLER • CYLINDRICAL ROLLER • NEEDLE • BALL • NEEDLE ROLLERS • THRUST

SUPERHEATER PROTECTION

with B&W Recovery Unit NOSE BAFFLE

To meet the demands of the pulp and paper industry for more economical and dependable steam for power generation, modern chemical recovery boilers are being designed for higher pressures and temperatures. B&W Heat and Chemical Recovery Units are in fact now under construction, designed to operate at 1500 lb pressure and 900 F steam tem-

perature at the superheater outlet. Pulp mills can now be assured of lower power costs through increased efficiency as a result of dependable high-pressure, high-temperature steam generated in B&W Heat and Chemical Recovery Units.

PROBLEM—

Corrosion of superheater tube metals and increased superheater maintenance can be a serious problem. High superheater tube metal temperatures, resulting from high steam temperatures in the presence of fluid smelt, cause superheater tube corrosion.

SOLUTION—

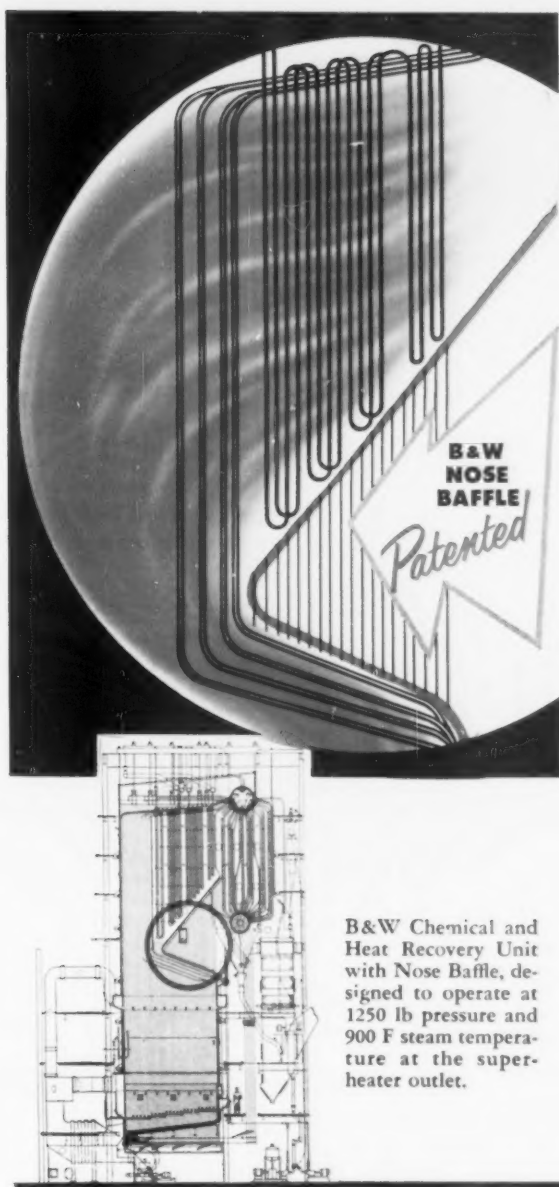
The B&W Nose Baffle is designed to solve this problem. This patented feature of B&W Recovery Units makes possible uniformly low gas temperatures below the fluid temperature of the ash. The Nose Baffle creates a turbulent mixture between the hot furnace gases rising from the hearth and the cooler gases being recirculated at the front of the nose. The gas and ash temperatures in the superheater are further reduced by shielding the superheater tubes from the radiant heat of the furnace.

RESULT—

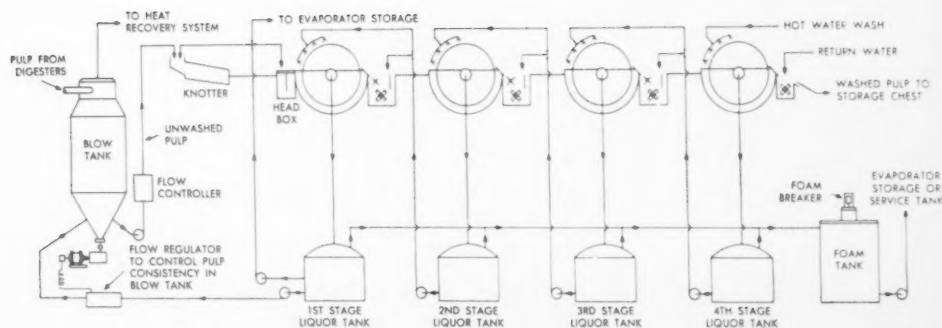
Difficult to remove and corrosive smelt deposits are converted to a dry, powdery ash as a result of the lower gas and ash temperatures. Automatically operated retractable soot blowers easily clean the ash from boiler and superheater surfaces. This eliminates superheater metals corrosion and reduces frequent, difficult and costly cleaning to the minimum. Cleaner boiler surfaces assure lower operating costs, reduced labor requirements, and higher recovery unit efficiency.

The B&W Nose Baffle design is just one of many cost-saving advantages of B&W Recovery Units proved in service. B&W Recovery Units have demonstrated economical operation and high availability in leading pulp and paper mills for over 20 years.

The Babcock & Wilcox Company, Boiler Division, 161 East 42nd Street, New York 17, N. Y. P-784



The four stage Oliver Brownstock Washing System with four Washers, similar to that employed at Dryden Paper Company Limited. All of the major equipment units in the Brownstock Washing Flowsheet are supplied by Dorr-Oliver.



Another Complete Dorr-Oliver System for Dryden Paper Company Limited

... New 300 ton 4 stage Oliver Brownstock Washing System with adjoining Dorr Continuous Recausticizing System at Dryden, Ontario Mill.

In full operation after a March 1957 start-up, this 300 ton 4 stage Oliver Brownstock Washing System plays an important role in Dryden Paper Company's multi-million dollar expansion program. With the Dorr Continuous Recausticizing System in the new Dryden, Ontario mill, the Oliver Brown-

stock Washing System produces bleached northern kraft pulp, while outside temperatures occasionally drop to minus 48°F.

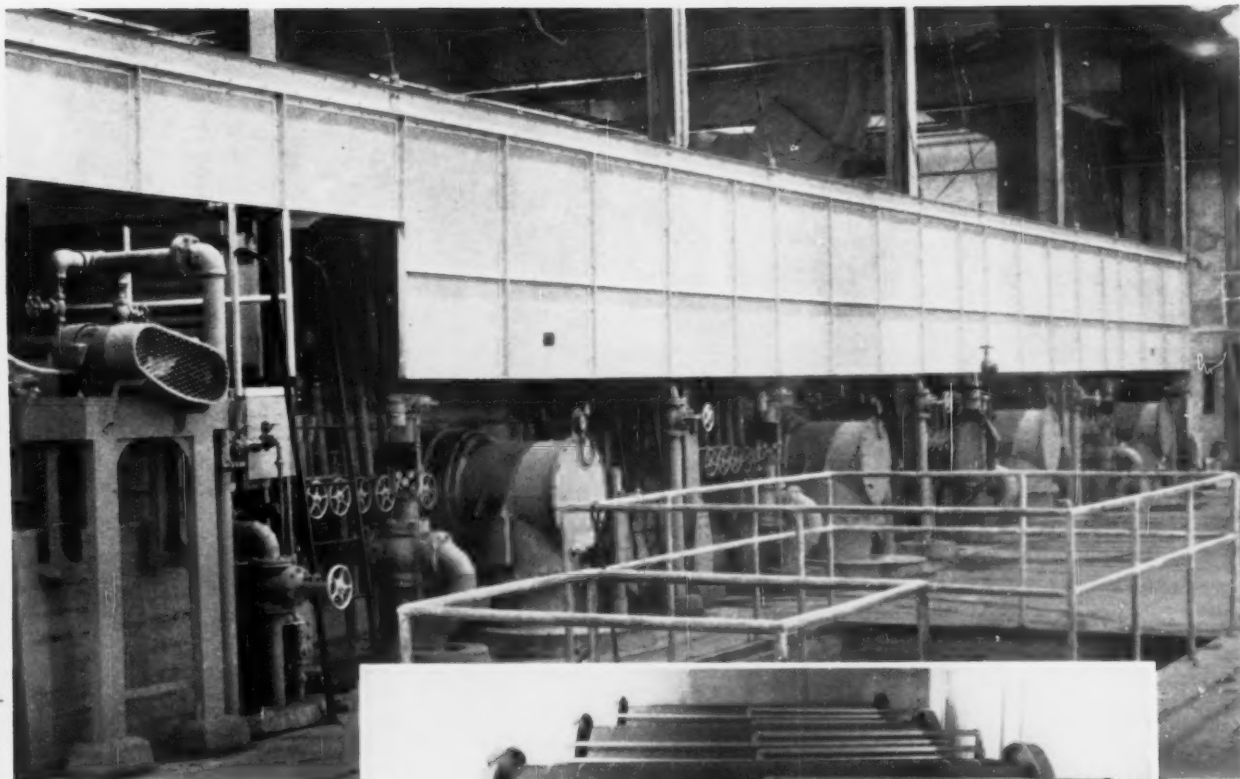
In the heart of the Oliver Brownstock Washing System are four, 11'6" dia. x 16' face, 55F9 Oliver cone valve washers; each with a hydraulic capacity of over 10,000 gpm.

At Dryden, where the annual capacity is anticipated at 142,000 tons, additional Dorr-Oliver pulp and paper equipment includes an Oliver Sheet Former and an Oliver Valveless Decker.

For more complete information on the Oliver Brownstock Washing System write for a copy of Bulletin No. 3303, Dorr-Oliver Incorporated, Stamford, Connecticut; or better still let us send a Dorr-Oliver engineer to discuss your specific filtration or washing problem with you, placing at your disposal the wealth of information accumulated through our 35 years of Brownstock Washing experience.

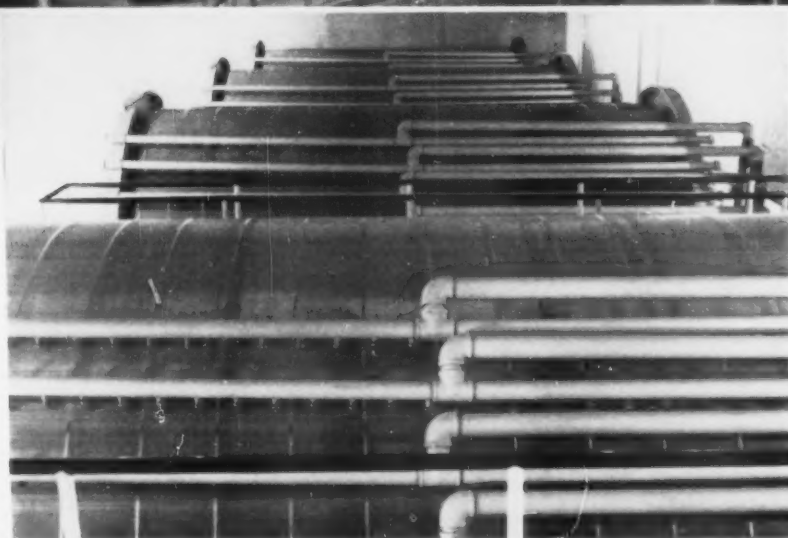


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INCORPORATED
WORLD-WIDE RESEARCH • ENGINEERING • EQUIPMENT
STAMFORD • CONNECTICUT • U.S.A.

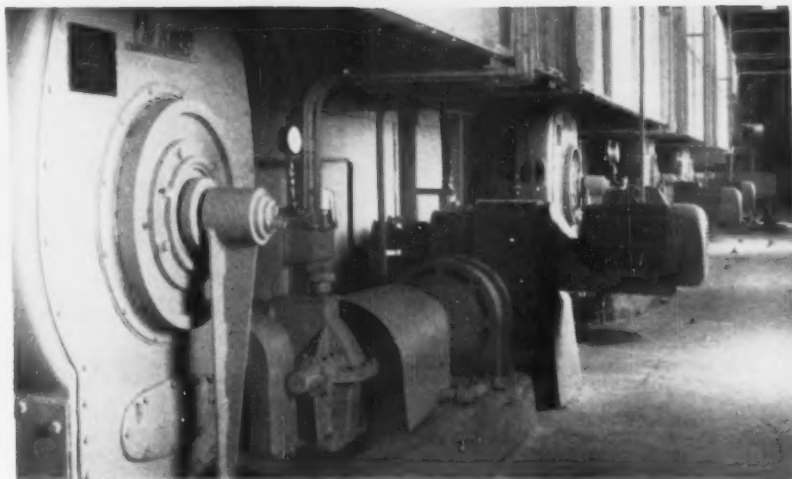


View of Oliver Brownstock Washing System at Dryden, Ontario enclosed under a hood.

Elevated view of the Oliver Washers illustrating the Nycoc Nozzles, wash pipes, and headers.



Drive end view of the four 55F9 Oliver Cone Valve Washers at Dryden. Note the rugged cast iron washer drive in the center foreground.



POWELL RIVER UNBLEACHED SULPHITE PULP



★ STRENGTH

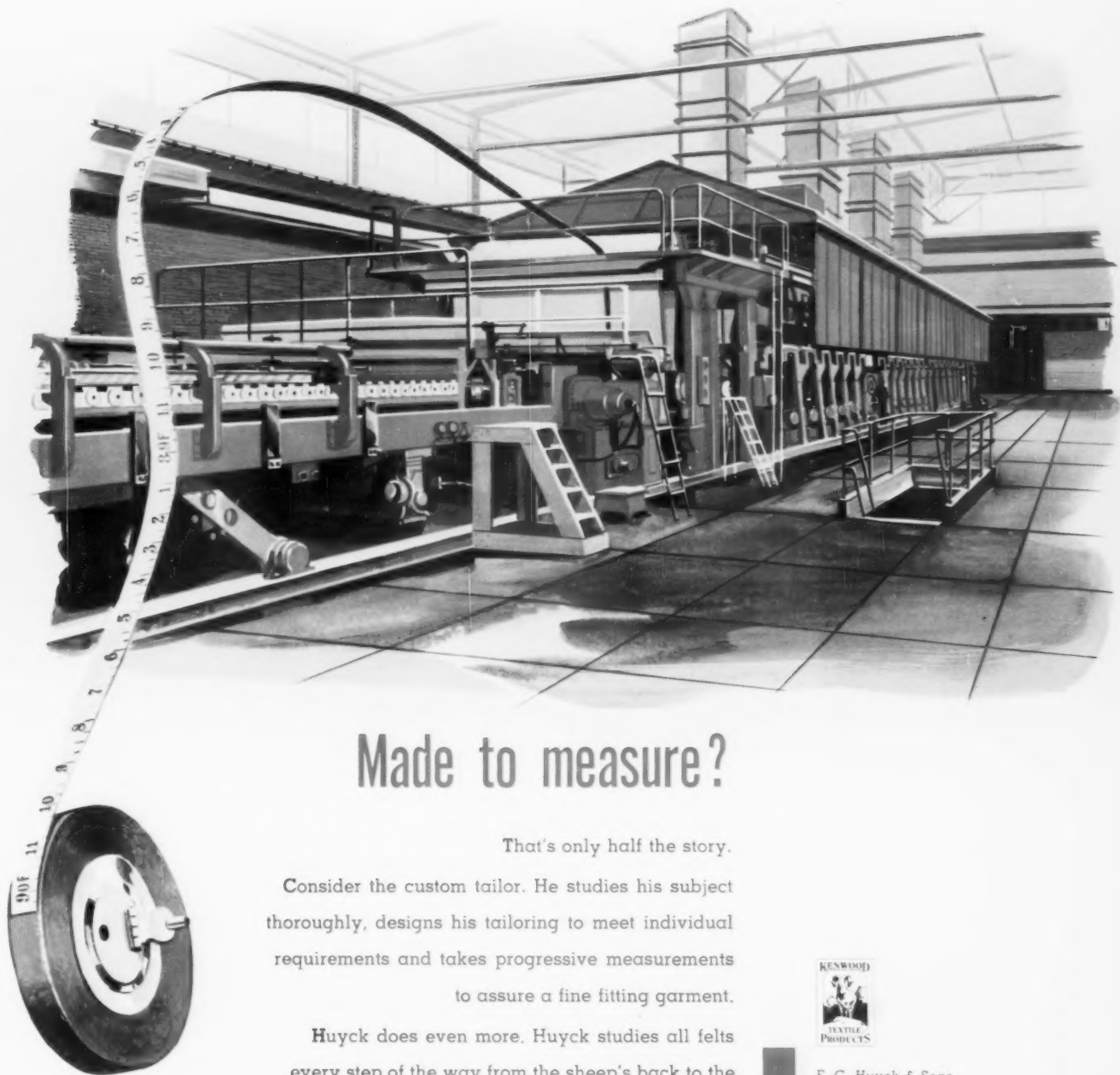
★ COLOR

★ CLEANLINESS

★ SERVICE

★ DEPENDABLE SUPPLY

★ **POWELL RIVER SALES COMPANY LIMITED**
STANDARD BUILDING VANCOUVER, B. C.



Made to measure?

That's only half the story.

Consider the custom tailor. He studies his subject thoroughly, designs his tailoring to meet individual requirements and takes progressive measurements to assure a fine fitting garment.

Huyck does even more. Huyck studies all felts every step of the way from the sheep's back to the finished paper product including a careful evaluation of the machine performance of each Huyck felt.

This close scrutiny, literally from the cradle to the grave, spells the difference between ordinary performance and that of new Huyck felts.



F. C. Huyck & Sons,
Rensselaer, N. Y.;
Aliceville, Ala.;
Peterborough, N. H.

In Canada: Kenwood Mills Ltd.,
Arnprior, Ontario.

NEW
HUYCK FELTS

FIRST IN QUALITY • FIRST IN SERVICE SINCE 1870

★ INDUSTRIAL FABRICS

Story of progress...

Dominion Engineering's part in developing Pressure Headboxes



The pressure head box is an essential component of all high-speed paper machines. The photo above shows the 1956 version of the original patented design pressure head box, as developed by Dominion in 1936.

Dominion continues to produce advanced designs in anticipation of the pulp and paper industry's demand for faster and more efficient machines.

DOMINION ENGINEERING WORKS LTD MONTREAL	
TITLE <i>PRESSURE HEAD BOX</i> PATENTED CAN. 1936 USA. 1940	
DRAWN BY. J. D. SEPT. 16 1936	PAPER MACHINERY DIVISION
SCALE 1/2" = 1'-0"	DRWG. C 11393



DOMINION ENGINEERING
COMPANY LIMITED, MONTREAL

**For BLEACHED
semi-chemical
pulp production**



Riegel

repeatedly chooses

SPROUT-WALDRON

36-2 Refiners

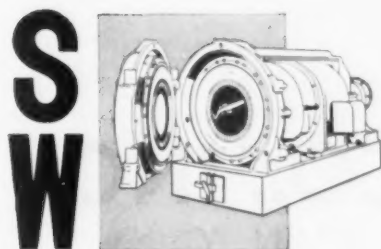
Two Sprout-Waldron 36-2 Refiners pulp semi-chemically cooked chips at the Carolina Division of the Riegel Paper Corporation. The refiners are fed from the blow tank through a Sprout-Waldron feeding system of Rotaflow Feeders, Flat Bed Drainers, and Magneguard Chip Chutes to provide uniform, controlled refiner feed at high consistency.

**The SPROUT-WALDRON REFINER is the
LEADING Producer of Semi-chemical Pulp**

SINGLE ROTATING DISC design with PERIPHERAL CONTROL
RING plus rugged construction for

- PRIME PULP QUALITY
- FLEXIBILITY IN OPERATION
- HIGH CAPACITY
- LOW MAINTENANCE

For more information on semi-chemical pulping or any other pulping problem ask for our file of mill technical reports on your problem. Write to Sprout, Waldron & Co., Inc., 32 Logan St., Muncy, Pa.



SPROUT-WALDRON
PULP MILL EQUIPMENT

an additive for coating colors

for

better leveling and printing



230 Park Avenue, New York 17, N. Y.

Looking Ahead—1958 Predictions

Industry leaders, on eve of Paper Week, discuss outlook for new markets — for capacity and production — and for profits

● 1958 may be a tough year but it should be a good year.

In spite of the many hard things now being said about the industry, there's really nothing wrong that common sense and some solid leadership couldn't straighten out in a hurry.

That's what many industry executives have told Pulp & Paper in a series of New Year interviews.

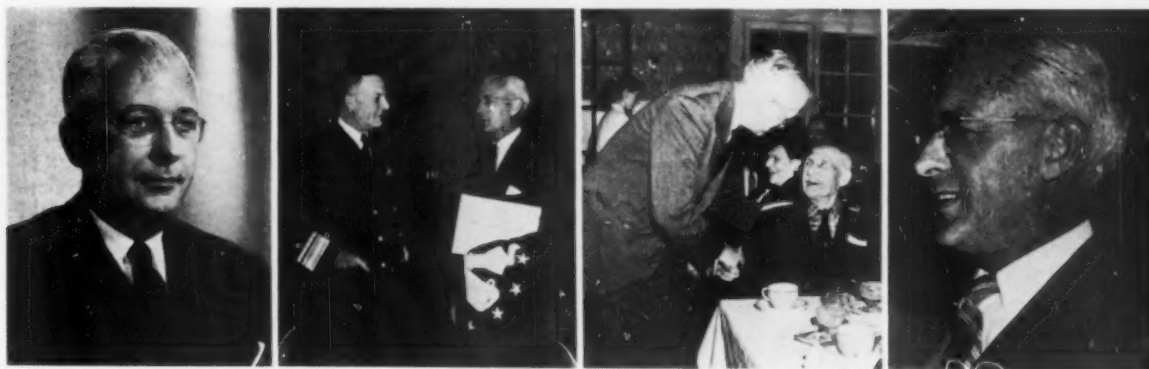
The general consensus is that 1958 will be a fairly good year—off possibly

by 1% on the average, which would still make 1958 the third-ranking record year for the industry. But there are a lot of problems.

Retiring APPA President David L. Luke, president of West Virginia Pulp and Paper Co.: "When a surplus of capacity intensifies competition, each company is eager to provide better and quicker service. We accept smaller orders and change grades more frequently than if we were in a sell-

ers' market; and this cuts down our practical capacity to produce. Instead of the historical capacity (of 34 million tons) shown as our capacity today, I believe that our actual capacity under present competitive conditions is closer to 31.5 million tons.

"Under present conditions demand for our products appears to be perhaps 6% below our practical capacity to produce, and a roughly similar surplus of capacity seems likely to endure un-



President-to-Be of APPA in Different Moods—Different Activities

John R. Kimberly to be New APPA Head

Scheduled to become new president of the American Paper and Pulp Assn. for 1958 is John R. Kimberly, president of Kimberly-Clark Corp. and grandson of John Alfred Kimberly, one of the four founders of the company. He will take over the reins of APPA in New York during Paper Week and, if custom is followed, will be re-elected to a second term in 1959.

Mr. Kimberly graduated from Phillips Andover Academy and worked during summer vacations in the bleach plant laboratories of the Kimberly mill while attending Massachusetts Institute of Technology. He went to work full-time for Kimberly-Clark after graduating from M.I.T. in 1926.

He moved through the company's carefully planned progression system, starting in the groundwood department of a bookpaper mill and working in various phases of mill operations in other company plants. He came to Neenah headquarters as assistant staff superintendent, organized central planning and served as its chief.

Just before Pearl Harbor, in November, 1941, Mr. Kimberly left his job as assistant general superintendent. He served in the office of production management and on the war production board in Washington, D.C., as a \$1-a-year man until March, 1943. He was assistant director general of WPB when he resigned.

From 1943 until his election as executive vice president in 1952, he was vice president in charge of sales. He became president of Kimberly-Clark in 1953 and board chairman in 1955. During these years he became one of the most widely-traveled executives in the industry, especially as a result of his company's expanding interests and new operations in England, Mexico, South Africa and Australia.

Mr. Kimberly is also president of Spruce Falls Power and Paper Co., Ltd., Kapuskasing, Ont., an associated company of K-C, and president of wholly-owned K-C subsidiaries, Kimberly-Clark Pulp and Paper Co., Ltd., Terrace Bay, Ont., Kimberly-Clark Products Ltd. of Winnipeg and Niagara Falls, Ont., Kimberly-Clark of Canada Ltd., Kapuskasing, and Munising Paper Co., Munising, Mich.

til at least 1960."

International Paper Co.'s Secretary William A. Hanway: "When you can't supply what the customer wants when he wants it, you not only choke off your own growth potential; you may divert business to some other material—and it may take a long time to get it back.

"An industry where managements have a mature long-range outlook on their business problems will always aim at having some margin of capacity to take care of growth potential and to meet emergencies. Such a pattern, however, might require a new look at pricing policies.

"Our people feel quite strongly that it is unsound to gear prices to an assumption of full capacity operations; that prices should be designed to provide reasonable profits while there is still some margin of capacity in reserve, a reserve to be drawn on to take care of customers if and when the unexpected emergency arises."

"On such a basis our industry could afford to have elbow room to take care of all customer requirements during periods of unusual demand. It would have the ability to grow with its markets and to finance the high capital investment required for expansion and still return an adequate yield for shareholders.

Dr. Louis T. Stevenson, economist: "A production ratio (historical basis) of 85% in 1958 would yield a margin of 15.1% before taxes on sales and 8.1% after taxes industrywide. Even if the production ratio should drop to 80%, the margin on sales, after taxes, would be 7.7%, a far from disastrous rate.

"If the production ratio should be taken as a determinant, the conclusion is that 80% of historical capacity will yield a reasonable profit margin of 7.7% after taxes. In other words, for the paper and paperboard industry (excluding newsprint), from the standpoint of the industry margin of sales, idle capacity of 20% taken on a historical basis cannot be called excess."

Crown-Zellerbach President Al Layton: "This industry is a mighty healthy growing youngster with a bright future, who has only proven himself human by growing a bit faster than his strength. The paper industry, because of its nature, must be managed and regarded from a long-range viewpoint. Unlike other industries we cannot work on a year-to-year basis or adjust our basic planning to meet short-term fluctuations in the economy.

"Our industry requires substantial capital investment—\$100,000 per ton of daily capacity. We turn over our invested capital only once every one

to two years. Our raw material is grown as a crop in cycles ranging from 25 to 80—plus years. In planning new production facilities, it takes us at least two years before a mill can be constructed and placed in operation." (Ed's Note: This estimate of \$100,000 does not include acquisition of timber.)

Profitless Prosperity . . .

That's what some are saying about today's conditions. A comparison of the paper industry with iron and steel, and chemical industries shows that while this industry has kept pace in net worth and sales, it has lagged far behind in profit performance.

John H. Vogel, APPA economist:

"In the past ten years the paper industry has become known as a growth industry, and rightfully so, for over that period the production of paper and board has increased by 40%. Value of shipments by the paper and allied products industries (including pulp, paper, paperboard and converted products) has risen by 80%. This has been a great accomplishment and the industry has taken pride in it. Now, however, there are indications that too much attention may have been given to increases in production and sales, and insufficient attention to profits. Profits, in terms of dollars, have not kept pace with the indicated increases in production and sales. For example, if one can assume that the first half profits will be maintained, profits for the paper and allied products industries will amount in 1957 to \$560,000,000. This would be 15% less than 1956, and 13% more than 1948. Thus, while production and sales will have increased by about 40% and 80% respectively, since 1948, the number of dollars earned will have increased by only 13%."

Reed R. Porter, executive secretary, Assn. of Pulp Consumers, Inc.: "consumption of paper-grade market pulp in 1957 was about 8% below the record of over 3 million tons set in 1956. While this drop exceeded the decline recorded by the industry as a whole (a typical characteristic of market pulp usage), 1957 still must be classed as one of the better volume years.

"With regard to the sources of our pulp supply, trends evidenced in recent years continued. Purchases of Scandinavian pulps in 1957 dropped more than 100,000 tons from the 1956 total. Not only did this tonnage decline amount to more than one-third of the total reduction in all pulp purchased last year, but reduced the Scandinavian proportion to below 10% of total receipts for the first time in our history. Canadian producers were

the principal beneficiaries as consumers shifted some purchases from overseas suppliers to the new market pulp mills which started operations early in 1957.

"Perhaps one of the more significant developments of the year, in my opinion, was the relative stability in the pulp marketplace in the face of declining demand coincident with a sizable bulge in the potential supply. The self-discipline exercised by a majority of the pulp suppliers in voluntarily cutting back production to demand is to be applauded."

Allen F. Horton, president of Curtis Paper Co.: "It is popular now to be a prophet of doom and/or gloom. I look forward to 1958 with great confidence. Many economists who say that we will be in a tailspin until mid-1958 are the same oracles who some months ago said nothing could stop the boom until next June. I do not think that the wise men can guess any better than you and I can, and I for one am optimistic.

"Back in my high school days I remember a sign in a rival school's locker room which read, 'A team that won't be beat, can't be beat.'"

More Predictions . . . from Canadian Leaders

"Long-range planning of the Canadian pulp and paper industry has been sound, but we may now have to take a bit of a breather for a year or two, which is not necessarily a bad thing for all concerned. The industry was never in a better position to tackle problems of the immediate future and to move ahead when the new upswing takes place."—**H. M. SPENCER LEWIN**, vice pres. Bowater Corp. of North America.

"The main trends which characterized our business in 1957 are likely to continue through 1958. The dollar value of combined sales of all our products will continue to increase. However, our costs are rising too and there are no indications of significant relief in 1958. The resultant profit squeeze, therefore, will continue to be our major burden."—**P. T. SINCLAIR**, pres. Crown Zellerbach Canada Ltd.

"The outlook for the year in the Canadian industry is reasonably good. There seems no doubt that the central banks both in Canada and the U.S. are beating a retreat from their recent austerities and this will likely improve the economy in many areas by the second half of the year. Any such improvements will be promptly reflected in our industry."—**D. W. AMBRIDGE**, president and gen. mgr. Abitibi Power & Paper Co.

Program is taking shape... APPA will discuss legislation and other problems... TAPPI meets in three different hotels

As Others See Us . . . The growing importance of the community of nations in the Eastern World has prompted Reed R. Porter, executive secretary of the Assn. of Pulp Consumers, Inc., to schedule Filmer S. C. Northrop, Sterling professor of philosophy and law at Yale University, as the main speaker

★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★

A Glance Back at '57 and Forward to '58

By
**W. LEROY
NEUBRECH**

Asst. Director, Pulp,
Paper and Paper-
board Forest Prod-
ucts Div., Business
and Defense Services
Adm., U.S. Dept. of
Commerce



Production of paper and board in the United States in 1957 will probably total 30.5 million tons, about 2.5% below 1956. The moderate decline may be attributed generally to a reduction in inventories accumulated in 1956.

Actual consumption of most grades of paper and board in 1957 will probably be about equal to or slightly in excess of that in 1956. Total consumption of about 35.8 million tons is about the same as in 1957.

The trends of individual grades, or grade groups, of paper and board have not necessarily followed this pattern. For example, a continued upward trend in production and consumption in 1957 is indicated for machine-coated printing papers, sanitary papers, and special food boards. Newsprint consumption in the United States in the first 10 months of 1957 remained about equal to that of 1956. However, domestic newsprint production increased nearly 14% in the first 9 months of 1957 over the 1956 period, while imports declined. Newspaper publishers' inventories were up substantially, an exception to the apparent inventory trend for most other grades.

Mill operating costs are reported to continue upward. Higher wages, more employee benefits, increased prices on raw materials, machinery and equipment, higher transportation rates, and larger financing costs on new plant and equipment, have resulted in considerable pressure on profits. The majority of mills report earnings below 1956. However, the year 1957 can probably be viewed as reasonably satisfactory, in terms of both production and profits, when compared to former years other than the boom years 1953 and 1956.

Encouraging Signs for '58 . . .

October activity in the non-durable goods industries maintained the record September level, while durables and minerals declined. Similarly, after seasonal adjustments, personal consumption expenditures in the third

quarter of 1957 for nondurables advanced \$3.4 billion (on an annual basis) over the second quarter; for services, \$1.2 billion; while for durable goods, expenditures remained the same as in the preceding quarter. Should the nondurable sector of the economy maintain or increase its activity, the paper and paperboard industry should be favorably affected, since the broad scale use of paper and paperboard in packaging and shipping of nondurables is a major factor in demand.

Perhaps one of the largest straws in the wind, which might be better described as a "weather vane pointing in the direction of larger sales," is the emphasis being placed by more and more pulp, paper and paperboard companies on market research, new-product development, new applications and increased consumption in established uses. For many companies, this is a comparatively new activity that is receiving priority attention from top management, and one which should pay good dividends in adding to markets and consequent production volume.

Packages Sell . . .

Theoretically, except for certain converted paper and paperboard products as mentioned previously, only the development of new products or new uses for paper or board would stimulate and increase demand above the volume accounted for by producers and distributors of other final-demand products. Yet it is becoming more and more evident that ultimate consumers of other products do "buy" paper or board. The sales appeal of the paper or paperboard package is often more evident in selling techniques than the final-demand product itself.

In the case of literally hundreds, if not thousands, of consumer products, it is possible to see or examine only the container, not the product itself.

The use of incentive colors or pictures, or the vivid printed description of the product enclosed in the container, may mark the success or failure of the total sales effort for such products.

This is equally true in the field of advertising, where the technical qualities of the paper may achieve the type of printing or color reproductions that result in successful eye-appeal selling. Whatever the paper and paperboard industry can do, directly or indirectly, to enhance the selling efforts of final-demand products will definitely contribute to its own welfare.

for their 10th annual luncheon.

Prof. Northrop is a fluent speaker and writer (*Taming of the Nations, Meeting of the East and West and European Union and U.S. Foreign Policy*) and will interpret Western ways and thinking as seen through Eastern eyes. He has spent years teaching and studying abroad in China, India, Germany and Great Britain.

APPA's Formal Dinner . . . Lester B. Pearson, Liberal member of Parliament from Ontario and former Canadian Minister of Foreign Affairs, will be guest speaker. One Canadian paper has referred to Mr. Pearson as one who had made the "best use of Canada's second rate muscles to press a first rate point of view."

TAPPI To Meet In Three Hotels

TAPPI Week (its 43rd) will spread out to three hotels (Commodore, Biltmore and Roosevelt) for some 35 technical papers (previous high: 27).

It was only a few years ago that forest geneticists asked the industry's technical men to tell them what kind of a fiber they wanted. The challenge has been accepted and a new TAPPI committee (forest biology) will make its debut during Paper Week. Spawned by the fundamental research committee, the new group will try to bridge the gap between the "fellows in the pulp mill who are to receive the wood and the scientists in the forests who are trying to breed better trees."

The new committee's interest will extend beyond forest genetics, will encompass such fields as watershed management, protecting the tree from mould and insects, etc.

Other innovations will be the first technical session to be held by the graphic arts committee and a session on cotton linters.

Local arrangements will be made by the Metropolitan TAPPI district. Some TAPPI topics:

Combined automatic control of basis weight and moisture on a paper machine.

Hurletron automatic moisture control for paper and board drying control.

Special starches (Amylose) for corrugating.

Increased use of epoxy coatings.

Use of Mistron Ultra—a fine talc for control of pitch in pulp and paper.

Fire prevention and fire fighting.

A-C polyethylene wax blends for coating bond.

Wet strength-interfiber bonding studies of mechanism of wet strength development.

Fourdrinier Session:

Panel on cyclical Fourdrinier wet end variation.

Panel on size press operations.

Vacuum pump requirements.

Panel on problems in high speed machine operations.

Progress report on Stevens vacuum vat.

Engineering:

Finishing— orphan of the paper industry.

Tradition vs. progress in paper mill engineering.

A controlled turbulence pressure inlet.

Alkaline Pulping:

Kamyr digester operation using Southern pine.

Continuous pulping, processing of wood.

Influence of pH factor in sulfite pulping.

Atomized suspension technique.

Sizing:

Internal sizing with wax sizes.

Surface chemical aspects of paper sizing.

Analysis of rosin sizes.

Corrugating:

Printer-Slotter washup device.

Tapered speed glue roll drives.

Non-skid application on the corrugator.

Rotary die-cutting equipment.

Offset spray equipment.

Plastic and rubber scores.

Scheduling on the corrugator.

Humidity controls.

Pull-Pac.

Statistical:

Problems in testing (National Bureau of Standards).

Rejection of paper defects at the cutter.

Paper sampling in lieu of paper sorting.

Practical demonstration of sampling plans.

Dissolving Pulp:

High purity cellulose from wood.

PAPER WEEK PREVIEW

Dissolving pulps from agricultural crops.

Cylinder Board:

Symposium on cleaning and use of wastepaper.

Use of Asplund system on wastepaper.

Centrifuging screening at Canadian board mills.

Microbiological:

Odor control in pulp and paper manufacturing by use of stabilizing chlorine dioxide.

Toxicity of arsenical compounds to micro-organisms.

Water:

Symposium:

Cross section survey as a method of evaluating self-purificating capabilities of a stream.

Turbine aeration as a method to increase purification capabilities stream.

Will Industry Continue to Expand in Europe?

Net new U.S. private investment abroad doubled from just over \$1 billion in the first half of 1956 to a little over \$2 billion by first-half 1957, according to Edgar R. Baker, managing director of Time-Life International, speaking to U.S. Dept. of Commerce officials recently. Much of the increase was in Western Europe in preparation for the Common Market.

Some of this has come from U.S. pulp and paper companies. Kimberly-Clark Corp., in partnership with Unilever, N.V., and Aschaffenburg Zellstoffwerke, is building a crepe wadding plant near Stockstadt, West Germany, and, in partnership with Albert E. Reed and Co., Ltd., recently started up the first modern cellulose wadding machine in England at Kimberly-Clark Ltd.

Container Corp. of America, through its European subsidiary, Europa Carton A.G., is building a new 110-ton-per-day paperboard mill south of Bremen. Europa Carton already operates a paper mill, a folding carton plant and a corrugated container plant in West Germany.

Scott Paper Co. and Bowater Paper Corp. Ltd. share equal ownership in Bowater-Scott Corp. Ltd. (formerly St. Andrews Mill Ltd.) which produces household paper products. Last year Bowater-Scott put in its No. 4 paper machine.

Manufacturers of papermaking machinery and supplies are also expanding their European markets. Black-

Clawson Co. has a London company and a plant in England. Beloit Iron Works executives toured Europe last fall, inspecting plant sites. Morden Machines Co. recently licensed Mills-paugh Ltd., Sheffield, Eng., to build and sell the Morden Shush-Maker in Europe and Great Britain. Previous authorization had been given for other Morden machines. Since 1946 Mills-paugh has supplied 100 mills in 18 countries with over 400 Stock-Makers.

Manufacturers of logging and construction equipment report a bright side of their business is export. Allis-Chalmers recently formed Allis-Chalmers International and several chemical companies have created international subsidiaries. Paper companies have new export divisions.

Whether these are isolated instances or the beginnings of a trend remains to be seen. Business conditions in Europe are improving, with West Germany in particular making a remarkable recovery from the virtual stoppage of all business after World War II. American marketing methods with increased use of packaging are becoming more widespread. All over Europe there is an intense effort to raise the standard of living, which means a higher consumption of paper. Many paper products, in common usage in America, are virtually unknown in parts of Europe.

What Common Market Means . . .

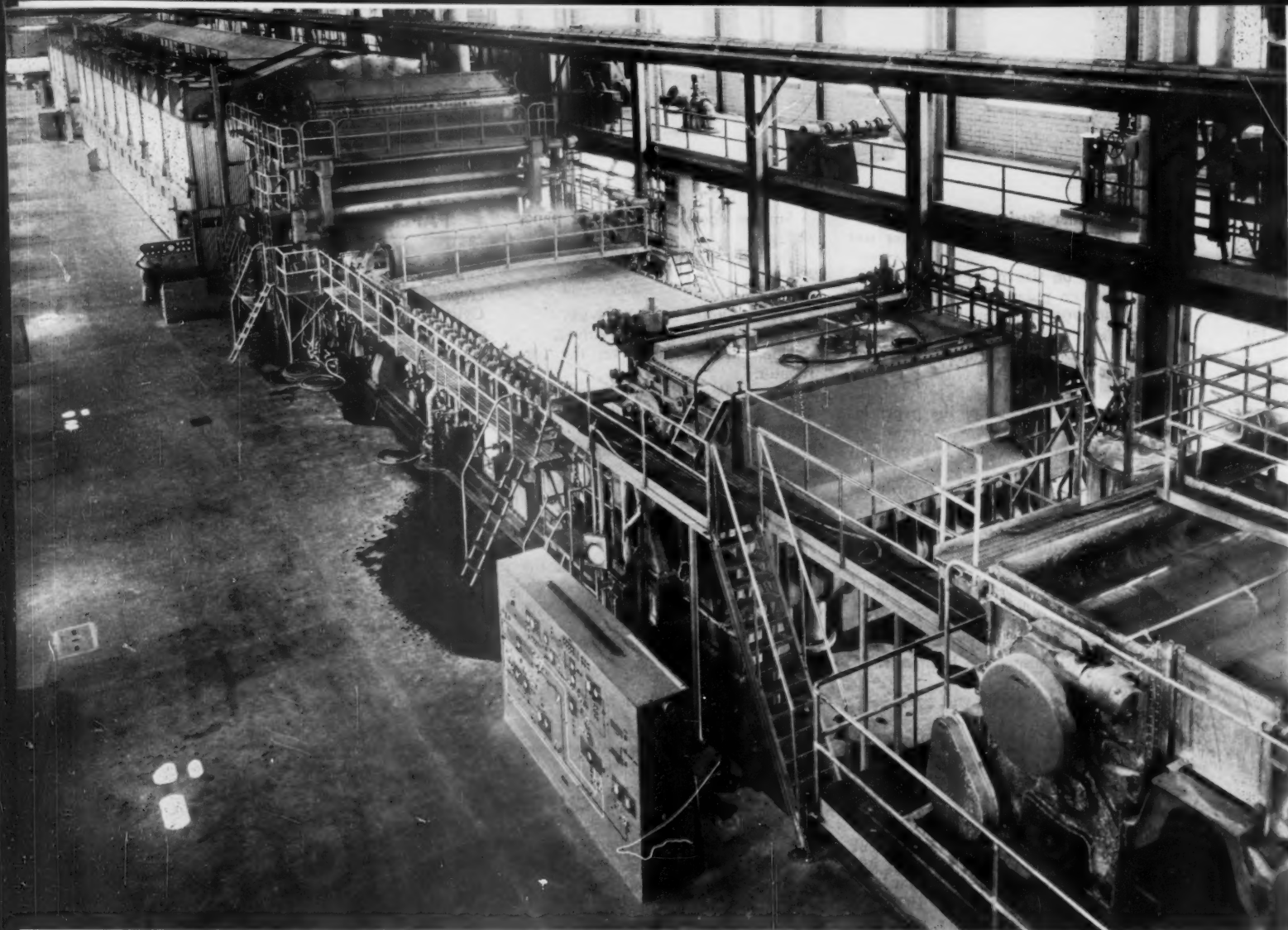
With the establishment of the European Common Market these trends

are likely to grow, reports PULP & PAPER's London office. Six European nations, West Germany, France, Italy, Belgium, the Netherlands and Luxembourg, who will become the Common Market, constitute a densely populated and highly industrialized market of some 160,000,000 people. It is expected that these countries will begin to reduce their tariffs with one another by the end of 1959.

It is reasonable to expect that the United Kingdom, Norway, Sweden, Denmark, Switzerland, Austria and Iceland will join before long. If they do, Eire, Portugal, Greece and Turkey may follow within a few years. That would raise the population of the European free trade area to 280 million.

The London report indicates that the U.S. pulp and paper industry may want to participate in the expansion that is bound to follow these developments, with more and more companies establishing overseas branches in the next few years.

J. D. Zellerbach, U.S. ambassador to Italy, said recently: "My own feeling is that in economic union the buying power of Western Europe's population will rise fast enough to make room for new enterprises as well as the expansion of existing enterprises. The Common Market treaty is above all a proclamation of the European's new confidence in himself and—what is even newer and more remarkable—his confidence in his fellow-European."



FULL LENGTH VIEW of Biron's No. 5. One of first and most complete wet end graphic panels for centralized control in foreground.

New Methods for More Book Paper

Pushbuttons for a new machine and better drying efficiency . . .
giant supercalenders and higher density peroxide bleaching

By ALBERT W. WILSON
Editor, PULP & PAPER

● A bright new star in the Wisconsin paper industry firmament is an "out-of-this-world" machine, here at Biron, which is on its way to setting new speed records for coated book paper production. According to Consolidated Water Power & Paper Co. operators, it only has to pass another postwar Biron machine which has clipped off 1,750 fpm and they confidently anticipate that it will.

"Out-of-this-world"—not like space moons but at least unusual for this paper world—is an expression you are

justified in using when you see this huge machine with its mammoth shiny aluminum, totally-enclosed hood, because it is quite different in appearance from any you have seen anywhere else.

Automatic graphic panel for the entire wet end and semi-automatic handling of rolls, which never have to support their own weight, are other novel innovations. The impressive construction of the new facilities adds up to one of the industries' ultra modern mills.

The big lobby-like entrance for mill workers reminds you of walking into the lobby of a modern metropolitan

building. New mill staff offices are strategically located between the new and not-so-new machines of the Biron mill. These and other features can't help but have a stimulating effect on workers. It was not surprising to hear Biron workers vie for jobs on the new machine.

Consolidated's 15th Paper Machine . . .

The new No. 5 machine at Biron will increase production of Consolidated enamel printing paper by 60,000 tons annually. Biron now matches Wisconsin Rapids Division, with five machines, the last two going

in at Biron in 1947 and 1957. There are two at Wisconsin River Division and three at Stevens Point Division. Of these, ten are on enamel paper, two on board, and three on waxing, manifold, and other sulfite specialties.

The new No. 5, is 420 ft. long, weighs 3,750,000 lbs., and was built by Beloit Iron Works. It started up last summer, is operating close to 1,500 fpm and eventually may exceed 2,000 fpm.

Five Biron screens (there are only four each on other Biron machines) and primary and secondary fan pumps precede the machine. Liquid level controls are at all these locations. A Swedish-type skimmer, an innovation used for wire pit level control, maintains a constant overflow to take off foam and top accumulation.

Fourdrinier and Press Section . . .

The Beloit air-cushioned inlet controls the flow of the stock onto the wire. The shake is conventional. The dandy roll is driven. The Fourdrinier area is standard but following it are several features which are unusual:

There is a straight-through press with Beloit's vacuum pickup, which is one of the few thus far installed on a book machine. It enables higher speed operation than was possible before on book grades. (Biron's No. 4 also has the pickup.)

The press section on No. 5 consists of a first transfer press (top plain rubber roll and bottom rubber suction roll), a first press (Stonite top roll and bottom rubber suction roll), and a second press (top Stonite and bottom rubber suction). This second press uses the air bleed press principle, another recent development, which reduces moisture of the sheet considerably before it enters the dryers.

The sheet is taken from the press to the driers by an air doctor which, like other doctors on the machine, is especially tailored and made for its position in the Consolidated shops.



NEW NO. 5 MACHINE ROOM separated from new power plant by train shed for pulp and clay delivery and storage.

New Additions and Developments at Biron Division

Features of new machine and other new additions at Biron (Wis.) Division of Consolidated Water Power & Paper Co.:

1. A 185 in. trim Fourdrinier machine with suction pick-up and Consolidated on-the-machine coater, operating close to 1,500 fpm and designed to ultimately exceed 2,000 fpm.
2. Totally-enclosed hoods—before and after coater—for better drying control across the sheet, with the drying rate already close to 1.4 lbs. of paper per sq. ft. per hour.
3. One of the first and most complete wet end graphic control panels for a paper machine.
4. Semi-automatic weighing of rolls by strain scale while in transfer from machine to supercalenders.
5. New type winder, equipped for spools and hoisting equipment, large enough to ultimately make two 50 in. shipping rolls.
6. Two-story high supercalenders with 196 in. wide rolls, fed on upper level with paper rolls which never touch each other, the floor, or trucks.
7. Circular settling basin (Sediflitor) which is a space, fiber, and filler saver.
8. A three-section continuous broke system, handled by one operator.
9. Automatic stock metering system serving four book paper machines with five different grades of pulp or combinations of these five. The whole mill was converted from beater system to modified Trimbey system.
10. The industry's first bulk starch handling system, making substantial savings over handling of starch in 100 lb. bags.
11. Groundwood capacity increased from 100 to 200 tons daily (other pulp grades pumped from Wisconsin Rapids or delivered by rail).
12. Expanded peroxide bleaching of groundwood, changing from low density to medium density operation.
13. Doubling of filter plant capacity to 12,000,000 gals. per day.
14. New boiler and steam turbine plant, bringing total outlay to \$15,000,000.

Drying and Coating . . .

There are three sections of driers, operated as two sections. First there are 41 paper dryers, each of which is 5 ft. in diameter. There are eight felt dryers. Then there is a Consolidated letterpress coating section, after

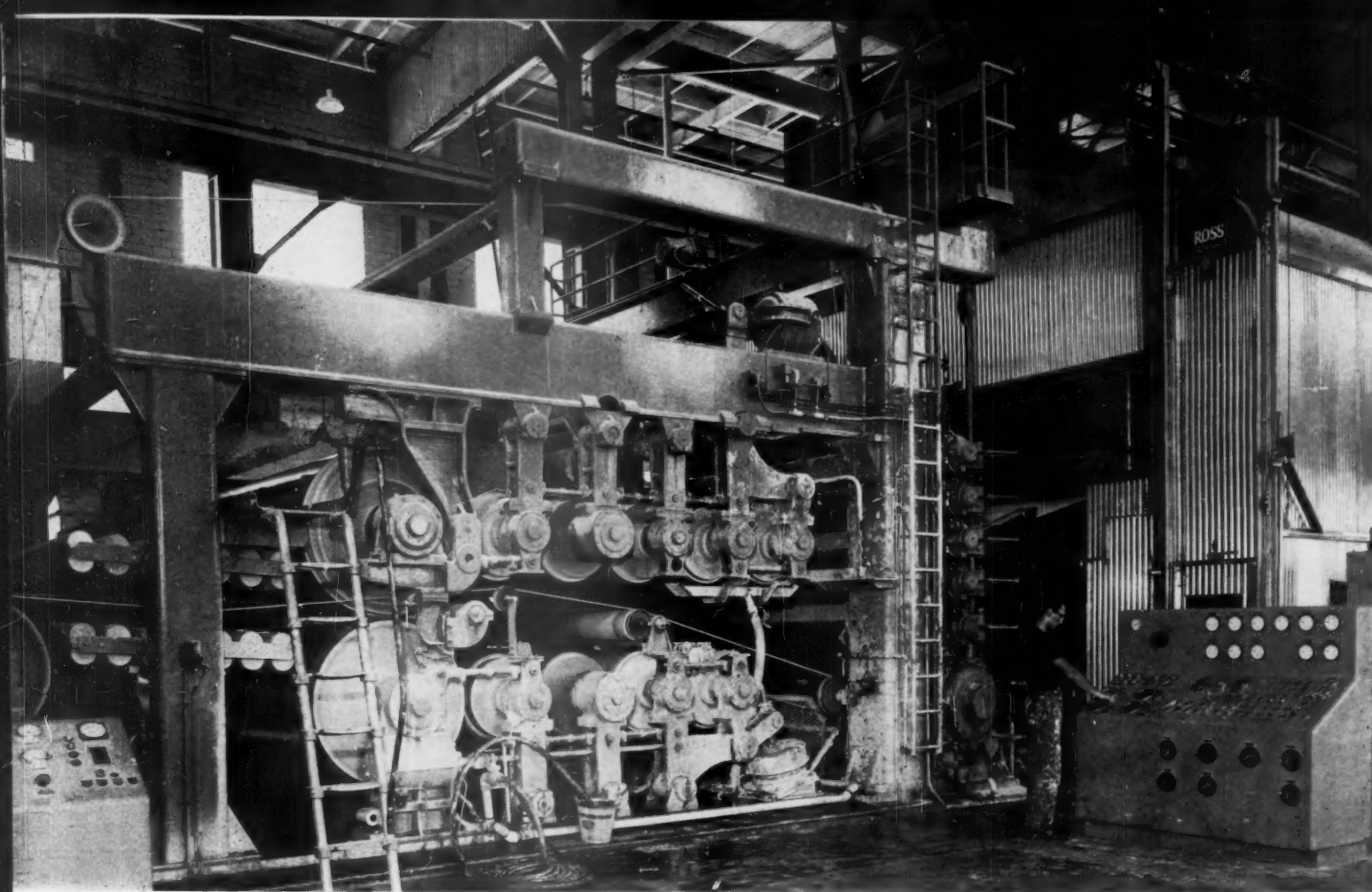
which there are one baby dryer (a 36 in. diameter lead-in roll) and 14 full size dryers.

The sheet is transferred from the first calender stack by air and put on the reel after the coating section by air. Just turning a valve does it. Very little air is needed.

Unusual Hoods—Better Drying . . .

The totally-enclosed hoods and ventilating system by J. O. Ross Engineering Corp. are an outstanding machine feature which gives this 750 by 80 ft. machine room its "out-of-this-paper-world" look. The hoods are gigantic, beautifully constructed units, which would impress most paper-makers viewing them for the first time. They are constructed of shining aluminum and with aluminum beams and frames. Aluminum walls are corrugated for strength, and hardboard provides insulation.

Pushbuttons automatically open doors for three sections of the main



CONSOLIDATED COATING SECTION. Here is where famed Consolidated letterpress coating process is carried out at high speeds . . . between Ross-equipped dryer sections.

dryer and for two sections of the after-coater dryers. They can be opened simultaneously on each hood or separately. Lubricating controls are conveniently outside the hoods. The large doors are used to put on felts; smaller doors are used for felt stretchers and guides.

Test Drying Efficiency . . .

Consolidated engineers have made a thorough study of the operation of the hood and air system. They are credited with keeping the machine room very comfortable and make possible better control of drying especially across the sheet. Better control of heat exhaust from the mill (by keeping the correct dewpoint automatically adjusted) is said to be only possible with such totally-enclosed hoods.

Consolidated was shooting for the greatest possible drying rate, healthy working conditions, and overcoming the tendency toward wet center areas in the fast drying of the paper. There are three economizers, two on the main dryer section and one on the after-coater dryers, three exhaust fans, three supply fans, a dryer felt air supply system, steam-heated booster coils, and provision for heating water with economizers. Smaller economizers and fewer and smaller fans are needed with the enclosed hoods. The

hoods have plenum chambers in the roofs.

No. 5 has been drying at a rate of 1.36 lbs. per sq. ft. and the Biron staff expects to reach 1.4 lbs. when operating at higher speeds. It is using 2.6 lbs. of steam for each pound of paper, which is regarded as a low figure. Temperatures around the machine work areas are 15 degrees lower than in those machine rooms at Biron with open hoods. Moisture content across the sheet is more uniform than on any other Consolidated machine. Heat recovery averages 9.7 btu/cu. ft. of air circulated. There is also heat recovery from water heating features of the economizers.

Training of Crews . . .

Operators and maintenance men are pleased with the machine. Because of the attraction of work on this machine, it was possible to assign the most capable men to it. A step-up system is used in filling the crew. On the 40 hour week, a backtender has to be a machinetender one day a week. So No. 5 really has five machinetenders. Men from each of the other Biron machines were selected. Actually five men run the machine—the machinetender, backtender, third hand, fourth hand, and coater boy.

With the elaborate automatic

graphic instrument panel, training of good crews was even more important. (There were dry runs for ten days before start-up, which included the putting on of felts and wires.) Consolidated engineers with Taylor Instrument Co.'s staff designed the panel which controls the wet end up to the press section and which is one of the most extensive for a paper machine. It is 7 ft. high by 12 ft. wide.

The Sediflitor and filter system is operated off the panel as is the charging for start-up, all liquid levels, stock regulator, and basic weight valve. Merely a turning of a button adjusts these. Striping shows the product flow right to the press section. Adjustments pull in heated filtered water, constantly used as shower water. A Green Bay Foundry & Machine Works North filter, taking fiber out as it is reused, is controlled here. The slice adjustment also operates off the panel. There are buttons, lights and lights for a myriad of purposes. The panel saves a lot of climbing and time. The highest the machinetender has to climb is the Fourdrinier runway.

Elaborate Broke System . . .

The E. D. Jones & Sons broke system has three through-floor outlets—one at the couch area, another at the forty-first and last dryer of pre-coater

area, and another after the last coating dryer. Broke goes to Liebeck disintegrators. A panel on the upper floor shows levels and consistency of each pulper, which pulpers have DeZurik consistency regulators. One man operates all three systems.

A Black-Clawson Hydrapulper handles shavings from the two Cameron winders and slabs from supercalenders and winders.

A Shartle Hydrafiner situated between the raw broke and the refined broke chests gets out the broke spots.

Handling of Rolls . . .

After the paper machine a Beloit air flow reel is used as a rewinder. A spool slides against its one drum to give hydraulic pressure for making as large a roll as is desired. It is equipped for spools and hoisting equipment and is able to make a log large enough to make two 50-in. supered shipping rolls. Spool and roll weigh 11 or 12 tons. A variable speed General Electric drive ranges from a crawl to 6300 fpm.

An Ametron automatic roll weigher, made by Street-Amet Co., is used. A punch card attachment may be added whereby a pulled lever automatically causes roll weight to be stamped on a card.

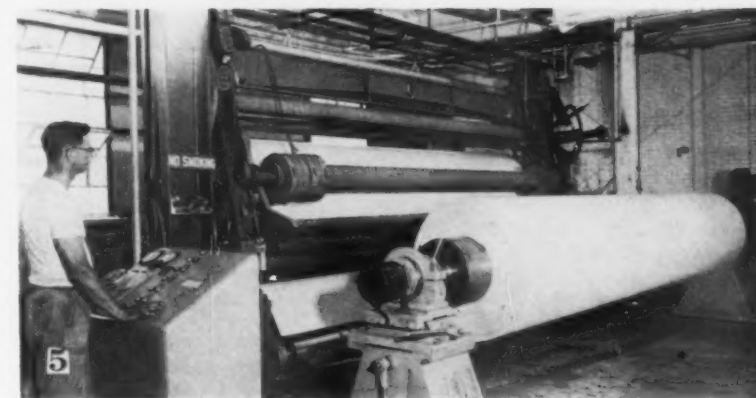
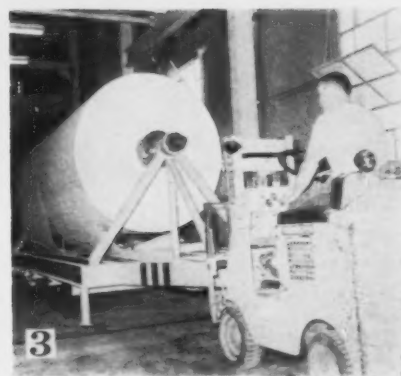
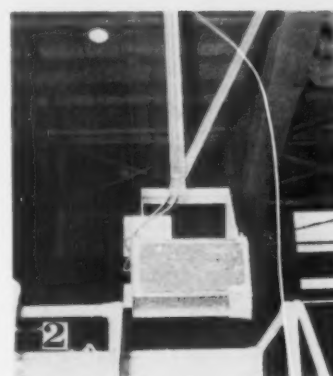
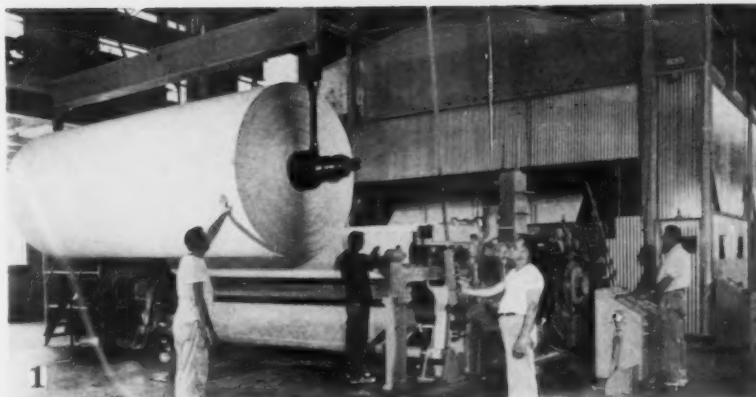
Two giant ten-roll Appleton Machine supercalenders are two stories high and are fed from machine floor level. Finished rolls of paper never touch another roll, never touch the floor, and never touch the Towmotor trucks on which they are moved from No. 5 machine to the supers. There are ways for the spools to ride on and they rest on rails that keep the roll off the floor. In storage ahead of the supers, the Towmotor sets the spools in bearing holders so the log never has to support its own weight.

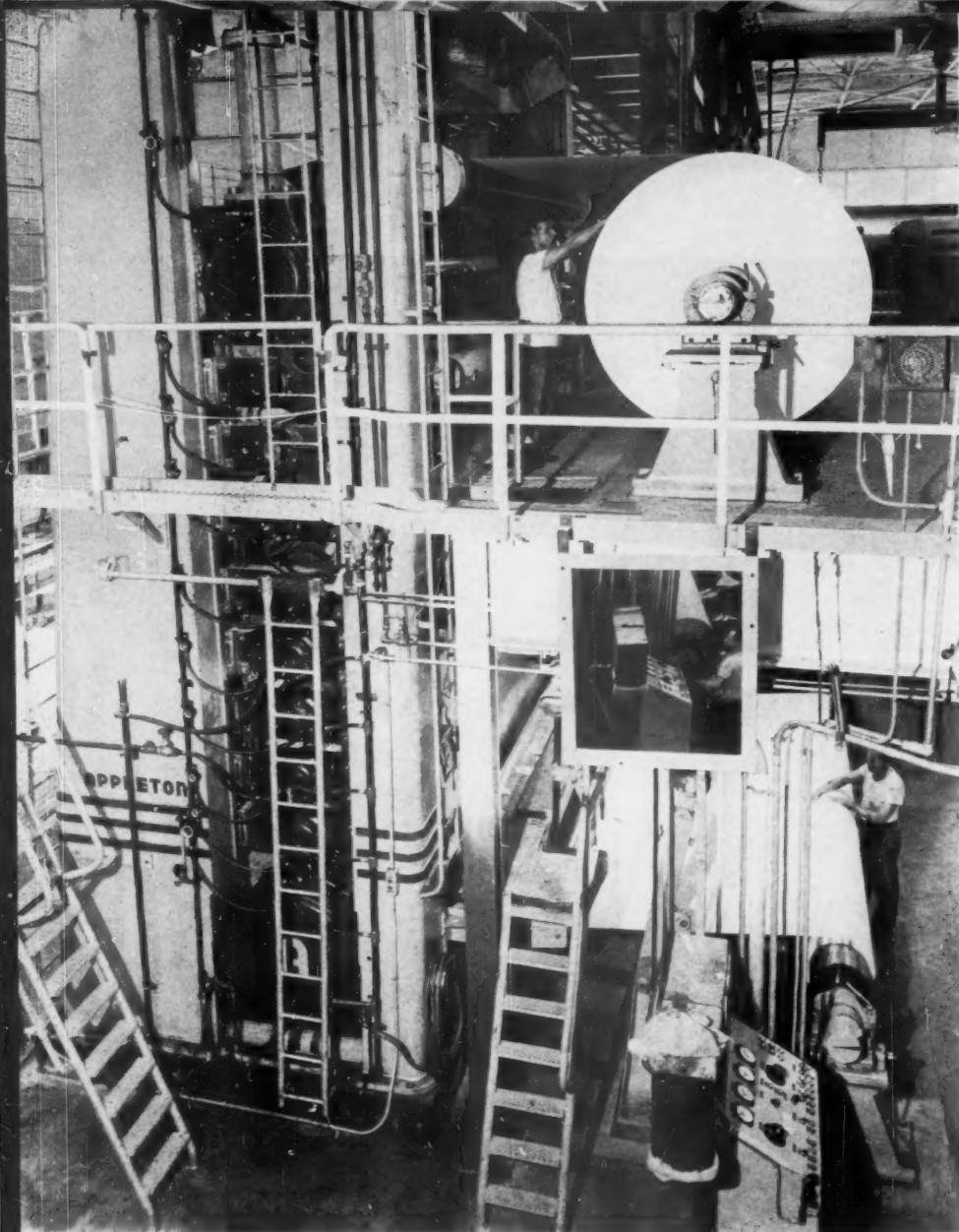
Supercalenders . . .

The supers are equipped with rolls 196 in. wide. The king roll is 40 in. in diameter; the queen roll is 32 in. in diameter. Fed on the machine floor, the sheet comes off on the shipping floor level—one level below—saving time and transportation. Placing the supers on two levels eliminated the

FEATURES OF ROLL HANDLING

1. Air flow reel is used as rewinder . . .
2. An Ametron automatic roll weigher . . .
3. Roll never touches floor or Towmotor truck . . .
4. Rolls are still off floor—resting on rails on way to supers . . .
5. Cameron rewriter is also used at Biron . . .





TWO-STORY HIGH SUPERCALENDERS by Appleton Machine Co. handles 196 in. rolls. Note mirror in which operator and his panel are reflected, which in turn is serving as aid to his work.

raising of the roof to accommodate their height and the difficulty of raising 11 and 12 ton rolls.

Drive units are General Electric motor generator amplidyne sets. There are controls for speed of stack, an electrical brake on the unwind, and control of tension on the wind-up.

Fiber Recovery . . .

The Sediflitor supplied by Inflico, Inc. is a circular type of settling basin with a skimmer on top, which was selected because it takes less room than the other machine savealls used at Biron. It pumps air into incoming water which floats the fibers which are then skimmed off at the top, saving a substantial amount of fiber and filler.

Stainless steel pipe fabricated by Felker Bros. is extensively used in the new machine room for stock lines.

Johns-Manville Transite is used on piping for white water lines. Tanks are tile-lined.

How Stock is Blended . . .

A new stock proportioning system is controlled by one man and serves four paper machines with two kinds of sulfite, also kraft, groundwood, and semi-chemical pulps or combinations of any five. Fillers and color tanks are in this layout. A star valve proportions these stocks with Taylor instruments and Louis-Allis Ajusto-Spede drives. The whole mill was converted from beater system to modified Trimbe system.

Many pumps are Goulds. Vacuums on the machine are by Nash pumps. Alum and color pumps are Milton Roy and clay meter pumps are Moyno. Beckman pH control is used.

The first bulk starch handling system in this industry at Biron has pre-

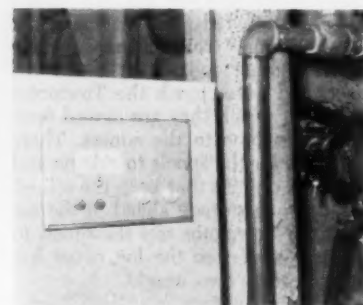
viously been described in PULP & PAPER. It is expected to reflect substantial savings over conventional bagged starch. It includes mechanical and pneumatic conveying by Dracco Corp. from cars to five A. O. Smith storage silos and to coating preparation. Here Felker-fabricated starch cookers are used.

Wood Preparation . . .

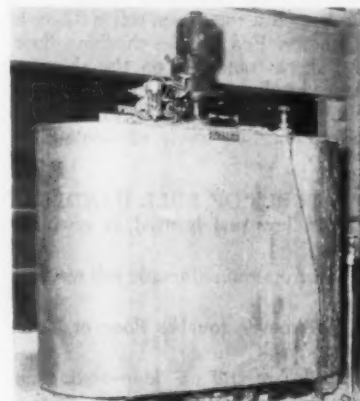
A new 9 by 120 ft. hot pond, 12 ft. deep, was built at Biron to handle 100 in. spruce and poplar for groundwood. The new jackladder to the woodroom is equipped with D. J. Murray slasher saws. A Carthage Machine hydraulic splitter was also added to the two-drum woodroom. A new Link-Belt system of chain and belt type conveyors moves the processed wood from the woodroom to grinders via a wet storage tank.

Groundwood Mill . . .

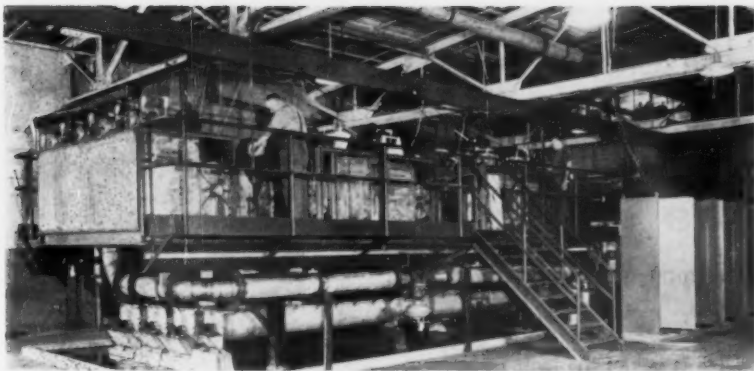
Groundwood capacity has been increased from 100 to 200 tons daily by the addition of three Appleton grinders and conversion of two existing grinders to handle 50 rather than 33 in. wood. Grinder drives are by General Electric. Allis-Chalmers screens, a Bauer refiner, and Impco decker and thickener are used in groundwood screening. Central States Engineering



BECKMAN pH CONTROL is used for No. 5 stock.



CONSISTENCY CONTROL for No. 5 machine by this DeZurik unit.



NEW STOCK PROPORTIONING SYSTEM is a modified Trimbley blending setup for combinations of five kinds of pulp.

Co. were consultants on certain phases of woodroom and groundwood departments' expansion.

Bleaching and Chemical Pulps . . .

A new peroxide bleaching plant for the groundwood utilizes a three-story high steel Impco tower for mixing chemicals. An Impco double shaft mixer and two big Impco vacuum deckers were also installed as part of the expansion to provide for medium density bleaching at 15%. Bleaching was formerly done at 7%.

Mitscherlich sulfite pulp which comes from Consolidated's Appleton mill is delivered in boxcars and unloaded on pallets. Purchased kraft pulp comes in conventional bales.

Standard sulfite and some semi-chemical pulp is pumped from Wisconsin Rapids Division via a 4-mile 10-in. cast iron pipeline which has been in use for thirty years. It can pump 4 to 5 tons an hour to Biron. Originally the line was put in with Leadite, a sulfur compound. Actually there are two lines to the Rapids; one brings sulfite and the other returns white water residue so there will be no loss of fiber. Flow can be reversed, thus cleaning the lines. Groundwood can be pumped to the Rapids from Biron, if necessary. A Go-devil brush is also put through the line for cleaning.

Water and Power . . .

To meet water requirements, an Infilco Accelerator and filter beds and a Green Bay Foundry & Machine North filter were added to the plant. Filtered water capacity was increased from 6 to 12 million gal. per day.

A new boiler and steam turbine plant was the last part of the Biron expansion to be completed in October. A Babcock & Wilcox 1,450 lb. pressure Cyclone-fired coal-burning boiler, one of the industry's highest pressure units, and a General Electric 15,625 kw single extraction back pressure

turbine were the major units in this addition. These are housed in a ten-story steel and aluminum building and have Bailey Meter controls and Chain-Belt coal handling.

Ingersoll-Rand supplied the boiler feed pump and the air compressor and fan. Foster-Wheeler provided the feed water heater and Elliott Co. the de-aerating heater.

Men Behind the Expansion

Overseeing this major expansion at Biron, Consolidated's biggest in years, were Stanton Mead, president; Henry Baldwin, vice president, manufacturing; and Warren Beadle, Biron division manager.

The machine itself and other facets of the project were a direct major concern for Robert Mader, production manager at Biron. Fred Vidal, pulp supt., and Walter Dekarske, in charge of supers and rewinders, were in charge of special features, as was Hugh Damon, coating dept. supt.

A new supt. of paper machines for Biron is John S. Konkol, promoted from tour foreman to succeed Fred R. Leverance, who retired after 49 years of service. Edward Aughey succeeded Mr. Konkol as tour foreman.

The Central Engineering Department in Wisconsin Rapids, of course, also was closely identified with the expansion. M. V. "Molly" Molsberry, chief engineer of the company, headed up this work. Walter Wefel, Consoli-



GROUNDWOOD CAPACITY IS DOUBLED. Two Appleton grinders were added. Here are transfer conveyors . . . also exhaust system which made a clear picture.

dated's veteran mechanical engineer, worked with Beloit engineers and others. Arlie R. Dent, head of the civil and construction engineering group, had general supervision over structural plan preparation, structural materials requisitioning, and project erection. George Marcoux was supt. of construction on the project until his retirement in April 1957, when Edward Kryshak succeeded him.

Promotions at Biron Division were announced recently by Mr. Beadle.

Ken Kruger has been appointed assistant to the production manager. Granville Weaver has been named Biron laboratory supervisor succeeding Mr. Kruger. Clifford Papke has been named assistant to the laboratory supervisor succeeding Mr. Weaver. Darrel Alverson has been appointed assistant to the sanitation foreman. He succeeds Edward H. Weil who has been assigned to the Biron winder and super dept. for special projects.



Mead Baldwin Beadle Molsberry Mader

Alabama's Boykin Says . . .

'Everything Is Made For Love'

. . . Colorful U.S. Congressman gets his feet wet in the pulpwood business . . .

• "Howdy, pardner, everything is made for love."

Heard along the streets of Dallas or on a Hollywood soundstage this greeting might not come as a surprise, but echoing through the halls of the House of Representatives in Washington it has a sobering effect on more than one stranger.

Nonetheless, "everything is made for love" has been, for 40 years, the greeting trademark of one of the most colorful, confounding, sometimes misunderstood and oftentimes tempestuous members of the U. S. Congress. He is Frank Boykin, who is owner of a vast acreage of timberlands in the South.

Besides this, he officially represents the 1st District of Alabama, but often likes to think of himself as a "Congressman at large" for the entire world. There have been times when he has come mighty close to being just that.

Since he has been figuring more and more in pulpwood news from the South, it follows that PULP & PAPER readers would want to know more about this man. He is the type Americans take to their heart and cherish as honest-to-goodness Americana—the Horatio Alger story of the poor boy who started from scratch and scratched up a fortune. The florid, snow-haired "big timberland man" literally lifted himself up by his own galluses—and the galluses can often be as colorful as the man.

Big Earnings from Pulpwood . . .

Mr. Boykin is now under contract with St. Regis Paper Co., permitting that company to cut pulpwood on a cordage basis on 100,000 acres of his timberlands in southern Alabama. The Congressman still retains hunting rights on the large game reserve and retains some smaller holdings. Essentially, the contract gives St. Regis permission to cut timber on about 90% of the vast Boykin estate. It has been reported that Mr. Boykin and his family will earn something in the neighborhood of \$300,000 a year from the contract.

Without a doubt, Congressman

Boykin is one of the most flamboyant figures in the pulpwood world today. To many, Frank Boykin has become the caricature of all Southern political figures. His comments have been known to stop the show on the floor of the House of Representatives. He can be, in one moment, the most astute of all representatives and in the next, the Peck's Bad Boy of Congress. Even his political adversaries have come to respect and admire him with a kind of "nervous indulgence."

Boykin's Success Story . . .

. . . began 72 years ago in Bladen Springs, Ala., on the outskirts of Mobile, where he still lives. He quit the third grade when he was eight, and got a job as a waterboy for a railroad. Before he reached his teens he was a clerk in a store in Fairford, Ala., before he was out of them he was manager of the store and by the time he was voting age he had his own business, making crossties for the railroad.

During the next few years, Boykin plowed through his competitors, most of whom were far more experienced and a lot richer than he was, turned up several fields of endeavor and harvested a fortune in timber, real estate, livestock, naval stores and investments. Like Midas, everything he touched seemed to turn to gold. Unlike Midas, Mr. Boykin had a heart of gold. He soon earned himself a reputation as a samaritan as well as a tycoon. Along the way to fame and fortune he found the time and money to educate his 10 brothers and sisters, picking up the bill for several college educations.

Says Mr. Boykin: "I got my degree from Black and Blue U.—the school of hard knocks." Today he is owner of the Washington Lumber & Turpentine Co., Bilbo Livestock & Land Co. and the Tensaw Land & Timber Co.

In 1935, Mr. Boykin felt the urge toward politics and was elected to Congress. He's been there ever since. His penchant for entertaining on a grand scale has made him the talk of Washington and if Perle Mesta can be called the "Hostess with the



Frank Boykin of Alabama . . .

"I'm not Mad at Anybody . . ."

Mostess" then Frank Boykin might easily fit the title of "Host with the Most."

In 1949, he tossed a still remembered shindig in honor of House Speaker Rayburn. Over 1,900 people attended—every member of Congress, foreign diplomats, government VIPs and many others. Hors d'oeuvres consisted of bear, deer, antelope, wild turkey from the Florida swamps, elk and raccoon. The second course was two-inch thick steak and the piece de resistance was a favorite Alabama dish—possum.

A huge banner over the speaker's table announced: "Everything is made for love." Congressman Boykin picked up the tab. It came to \$16,000! He's been entertaining like that ever since. His son, Jack, told PULP & PAPER that Boykin's annual expenditures for congressional duties sometimes equal five times his official salary.

A Witty Tongue . . .

Recently, while appearing before a House agriculture subcommittee, he announced that he had been attacked by fire ants in a most "vulnerable spot" while sitting on a stump in Alabama. "It would be a shame," he announced, "if we spent all our money fighting communists and then got destroyed by fire ants."

Regardless of the problem, the Congressman always seems to rise above the situation. Once he invited Harry Truman to go bear hunting in Alabama. Bears being out of season, an alert game warden rushed out to Mr. Boykin's farm. He found a freshly killed 300-pound bear hanging in a shed. The story made papers from coast to coast but the rhubarb was short-lived. A beekeeper who lived on Mr. Boykin's land came forth and said he shot the bear because it was helping itself to his honey. The manner in which Mr. Boykin treated the affair is perhaps a secret to his vast success:

"It's this way, son," he said smiling, "I'm just not mad at anybody."

Here—for the First Time—
Facts and Figures on . . .

Oxidation of Spent Semichemical Pulping Liquors . . . by the Zimmermann Process

By **DR. D. T. JACKSON**
Technical Director
and
DR. R. W. BROWN
Assistant Manager of
Laboratories
Hammermill Paper Co.

● The neutral sulfite process for producing semichemical pulp is one of the fastest growing segments of the industry.

Since the war there has been tremendous interest in this method of pulping deciduous woods. The process has permitted much wider utilization of hardwood for pulp and has been attractive to many companies for a number of reasons:

1. It permits production of a quality pulp with certain properties unattainable by other pulping methods.
2. Installations can be very flexible in size depending on needs of the mill.
3. The pulpwood is generally abundant and relatively inexpensive compared to softwoods.



Dr. Donald T. Jackson . . .
Dr. Richard W. Brown

Dr. Jackson has been technical director of the company since 1953. He was born in Bannock, Mont., graduated from Montana State and earned his doctorate at Pittsburgh University. He has been with Hammermill since 1933.

Dr. Brown is assistant manager of laboratories for Hammermill. He was born in Downingtown, Pa. He graduated from Haverford College and earned his doctorate at the Institute of Paper Chemistry. He has been with Hammermill 7 years.

This paper was originally presented at National Council for Stream Improvement, Pennsylvania Section meeting at White Sulphur Springs, W. Va., August 1957.

In May 1956, PULP & PAPER brought its readers the first description of Hammermill's trail-blazing Neutrancel (semichemical) pulping plant. The success of that plan required a means of disposing of the pulping effluent. Here is the first story of that phase of the operation. It reveals that:

1. Oxidation has been "very satisfactory."
2. Corrosion is virtually non-existent.
3. 92% of original oxygen demand is removed.
4. 90% of sodium sulfate can be converted to sodium sulfite.
5. Oxidation equipment is simple, easy to operate.
6. There is a minimum of maintenance and labor.
7. An economic plant can be built for chemical recovery.
8. Neutrancel (lab) cooks with recovered liquor are okay.
9. Reactions recovering sodium are simple. No sulfide or thiosulfate is formed during the process.
10. Economic return for steampower regeneration is indicated.

Unsolved problems:

1. Recovery of sulfur.
2. Recovery of released energy.

4. Air pollution is a relatively minor problem, especially compared to the kraft process.

There are, however, serious problems which prevent an even faster expansion of semichemical production. Most important is development of a means for disposing of the spent pulping liquors. Solution of this problem will have two concurrent benefits:

1. Stream pollution will be greatly reduced.
2. Pulp production costs may be lowered by recovery of cooking chemicals

Preliminary research by Hammermill indicated that the Zimmermann process showed promise of success. Therefore it was decided to construct a small commercial plant at Erie to test some of the features of the process.

General Description of Process . . .

The Zimmermann process covered by U.S. Patent 2,665,247, as applied to the effluent from Neutrancel¹ pulping, consists essentially of three unit operations. They are listed in Fig. 1.

¹ Neutrancel is a registered trademark describing the bleached semichemical pulp produced by Hammermill Paper Co.

(1) Oxidation is performed by treating the spent liquor from the digester without prior evaporation with sufficient air at elevated temperatures and pressure to give complete combustion. Under these conditions, most of the organic matter in solution is converted to carbon dioxide and water, the normal products of combustion.

(2) Chemical recovery involves the regeneration of the cooking chemical, sodium sulfite, from sodium sulfate. The sodium compounds appear mainly as sodium sulfate in liquid effluent from the oxidation process.

(3) Steam and/or power produc-

Figure 1—Unit Operations in Zimmermann Process

1. Oxidation
Conversion of organic matter to carbon dioxide and water
2. Chemical Recovery
Conversion of sodium sulfate to sodium sulfite.
3. Steam and/or Power Production.
Utilization of energy released by oxidation to produce steam and/or power.

tion may provide an important economic return from the process. The heat of combustion of solids in spent liquor appears as steam. In addition there is considerable pressure energy in the noncondensable gases which may be passed through suitable expansion engines to produce additional power.

Hammermill decided the best way to evaluate the overall process was to proceed in a stepwise manner. The program as laid out was to test the oxidation first, followed closely by investigation of chemical recovery if the oxidation were successful. Studies of steam and power production were delayed.

Description of Oxidation Plant . . .

This plant was placed in operation in January 1954. Detailed design and construction was done by Dravo Corp. of Pittsburgh. Sterling Drug, under direction of F. J. Zimmermann, inventor of the process, provided the general design and necessary engineering supervision. The plant was designed to handle about 50,000 gals. per day of digester strength spent Neutracer liquor.

The detailed flow sheet is shown in Fig. 2. Spent Neutracer liquor from the blowpit is raised to operating pressure, 800 psi, by a stainless steel piston pump. The liquor under pressure is raised to a temperature of 250°F in No. 1 heat exchanger by exchange with the oxidized liquor. The necessary air at 800 psi is supplied by a four stage compressor,

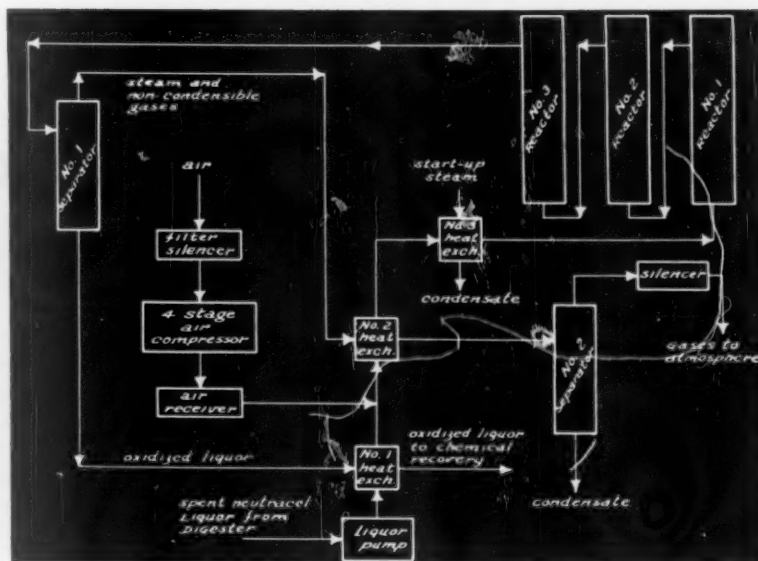


Figure 2—Pilot Oxidation Plant Flow Sheet

driven by a 600 hp motor.

The air and liquor are mixed and passed through No. 2 heat exchanger. The temperature is raised to 420°F by heat exchange with the steam and noncondensable gases which are separated from the oxidized liquor. Oxidation proceeds rapidly and the temperature rises quickly to the operating level of about 495°F in the first reactor.

No. 3 heat exchanger is used on start-up of the plant. Steam at 150 psi provides the necessary heat to initiate the reaction. As soon as the

oxidation becomes self-sustaining the steam is shut off and No. 3 heat exchanger is not used.

The three reactors are connected in series. They are 34 in. in diameter and 30 ft. high and made from type 316 stainless steel clad plate. In the reactors the organic matter in the spent liquor is oxidized to carbon dioxide and water. The inorganic appears as sodium sulfate and sodium acetate. The heat released by the combustion generates steam. Thus, the products from the reactors consist of two phases: (1) a liquid phase which is a concentrated solution of sodium sulfate and sodium acetate and (2) a gas phase which is a mixture consisting of steam, noncondensable gases, mainly nitrogen and carbon dioxide, and relatively small amounts of volatile organic compounds.

The oxidized liquor after separation from the gases in No. 1 separator is used to heat the incoming liquor in No. 1 heat exchanger. The cooled, oxidized liquor then goes to the next operation—chemical recovery.

The gases from No. 1 separator are used to heat the mixture of air and spent liquor to operating temperature in No. 2 heat exchanger. Condensate formed in No. 2 heat exchanger is removed in No. 2 separator.

The steam and noncondensable gases from this separator could be passed through suitable equipment to generate power or to use the steam. As mentioned earlier, the plant at Hammermill did not include this equipment. The gases were vented to the atmosphere after passage through a silencer.

The operating temperature and pressure chosen for this plant at Ham-

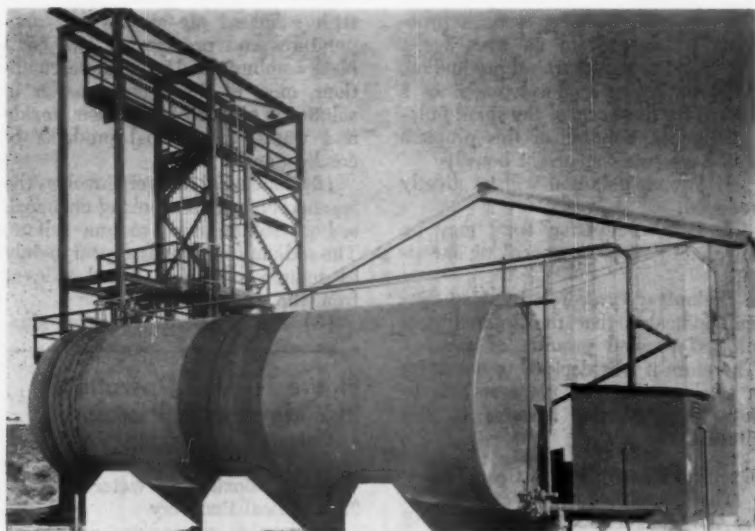


Figure 3—General View of Oxidation Plant

Reactors and separators are housed in the high structure in the left background. Housing was insulated rather than individual reactors and separators, reducing labor costs for insulation. Low building at right contains compressor, liquor pump, heat exchangers and operating panel.

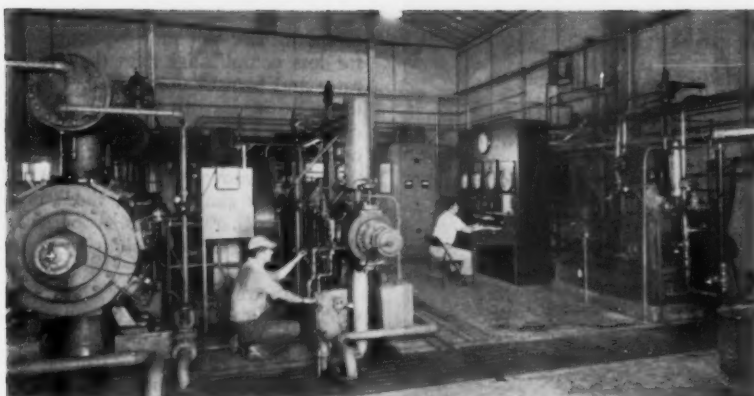


Figure 4—Inside the Operating Building

The compressor is on the left, the liquor pump is on the right and the control panel in the background. Two men are shown in the picture, actually the plant is run by one man.

mermill represents only one set of conditions. Mr. Zimmermann has carried out pilot plant studies using pressures ranging from 500 to over 3000 lbs. with corresponding range of temperatures. Virtually complete oxidation is approached at the higher temperatures and pressures. The choice of conditions is based on the requirements of the particular situation.

Performance of Oxidation Plant . . .
... has been very satisfactory. Initial start-up difficulties were at a minimum and continuous, smooth operation was reached quickly.

Corrosion has been virtually nonexistent. Care has been taken to maintain sufficient base in the spent liquor so that no free sulfuric acid is formed during oxidation. As a result of this control there is no evidence of corrosion in the reactors or in any other equipment which can be inspected.

The change in composition of spent liquor is shown in Fig. 5. This shows average analytical data of liquor before and after oxidation. The analysis of the oxidized liquor is given on an "as is" basis and, by correction for the water evaporated, on the basis of the original spent Neutrancel liquor. This correction has been based on the assumption that no sodium is lost in the process. The change in sodium content is, therefore, a measure of the water vaporized as steam. From this it is calculated that 60% of the original volume is converted to steam and the remaining 40% is the oxidized liquor.

Oxygen demand is determined by treating the sample with hot, acidic potassium iodate. All organic material is measured except volatile acids such as acetic which are lost by vaporization and are not determined.

Apparently only a small amount of the acetic acid is oxidized, since virtually all of it can be accounted for

in the oxidized liquor and the gases from No. 1 separator. The relative amounts in the liquid and gas phases depend on the final pH of the oxidized liquor. Under the conditions of Fig. 2, 61% is present in the oxidized liquor. The remainder is volatilized.

Mr. Zimmermann has stated that the volatilized acetic acid can be completely removed from the gases by passage over a catalyst. It is oxidized and adds its heat of combustion to the gases from the process.

The oxidation efficiency calculated from the oxygen demand and the reduction in volume is 92%. That is, 92% of the original oxygen demand has been removed, based on the potassium iodate oxidation.

The oxidation efficiency calculated on the basis of reduction in btu content is 88%. The difference probably represents the effect of the acetic acid, which, as was mentioned, is not determined in the potassium iodate analysis.

The BOD load of the oxidized liquor is considerably lower than that of the spent digester liquor. The residual BOD is probably almost entirely due to the sodium acetate in the oxidized liquor. This would not be a problem in a complete plant as the oxidized liquor would be reused in the pulping process. However, if only the oxidation operation were in use, some additional treatment might be necessary in a particular situation.

Chemical Recovery Process . . .

... which is covered by US Patent 2,750,290, consists of converting the sodium sulfate in the oxidized liquor to sodium sulfite which is the desired cooking chemical. The basic reactions are shown in Fig. 6.

Chemical Recovery Plant . . .

Capacity of the pilot recovery plant was approximately 8 gals. per min. of oxidized liquor. Considering the evaporation in the oxidation plant this is equivalent to 20 gals. per min. of spent Neutrancel liquor. Thus the plant had about 60% of the capacity of the oxidation plant.

A flow diagram of the process is shown in Fig. 7. Oxidized liquor mixed with the calcium sulfite sludge is sulfited with sulfur dioxide from the stripping tower, supplemented with the necessary burner gas.

The sulfur dioxide is absorbed by the liquor and dissolves the calcium sulfite, reaction 1. Simultaneously reaction 2, precipitation of calcium sulfate and formation of sodium bisulfite, takes place.

The mixture from the sulfiting tower is taken to the calcium sulfate separator. The calcium sulfate sludge

Figure 5—Composition of Liquor Before and After Oxidation

	Oxidized Liquor		
	Spent Neutrancel Liquor	"As Is" Basis	*Spent Liquor Basis
pH	8.7	4.9	—
sp. gr. at 80°F	1.061	1.117	—
Oxygen demand	91.5 gm/l	18.8 gm/l	7.5 gm/l
total sodium	17.6 gm/l	43.8 gm/l	17.6 gm/l
total sulfur	11.0 gm/l	26.3 gm/l	10.5 gm/l
sulfate sulfur as S		22.1 gm/l	8.9 gm/l
Acetic acid	16.7 gm/l	25.3 gm/l	10.2 gm/l
Heat of combustion	6000/Btu/gal	1800 btu/gal	720 btu/gal

*Values corrected for water evaporated assuming no loss of sodium.

Figure 6—Chemical Recovery Reactions

- (1) $\text{CaSO}_3 + \text{SO}_2 + \text{H}_2\text{O} \rightarrow \text{Ca}(\text{HSO}_3)_2$
- (2) $\text{Na}_2\text{SO}_4 + \text{Ca}(\text{HSO}_3)_2 \rightarrow 2\text{NaHSO}_3 + \text{CaSO}_4$
- (3) $2\text{NaHSO}_3 + \text{Ca}(\text{OH})_2 \rightarrow \text{Na}_2\text{SO}_3 + \text{CaSO}_3 + 2\text{H}_2\text{O}$

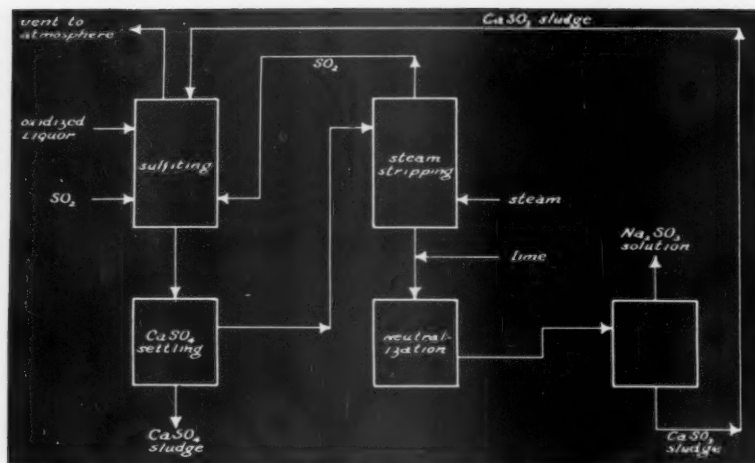


Figure 7—Pilot Chemical Recovery Plant Flowsheet

is discharged to waste. The clarified solution is steam stripped in the stripping tower to remove excess sulfur dioxide. This sulfur dioxide is reused in the sulfiting step.

The stripped solution, which is essentially sodium bisulfite with a small amount of free sulfur dioxide, is neutralized with lime, reaction 3. The calcium sulfite formed is removed in a second separation. The calcium sulfite sludge is pumped back to the sulfiting step and the clarified sodium sulfite solution is used for pulping more wood.

Performance of Chemical Recovery Plant . . .

Results of a number of runs showed 80% to 90% of the sodium sulfate could be converted to sodium sulfite. These results were based on composite samples from runs of several days duration. It is felt it will be possible to obtain conversions in excess of 90%.

There has been no evidence of formation of other sodium sulfur compounds such as sulfides, polysulfides, thiosulfates or polythionates. The only inorganic compounds detected are sodium sulfate, sodium sulfite and sodium bisulfite. The sodium acetate present in the oxidized liquor is, of course, unaffected by the recovery process. It is a liability as the sodium ion is tied up in an inert form and is unavailable for further pulping.

Mill experience with the use of recovered liquor in cooking Neutracel has been limited because of the relatively small size of the recovery operation. A number of laboratory Neutracel cooks have been made with recovered liquor. These have given satisfactory results, although a tendency towards slightly longer cooking time has been observed.

Since installation of this plant, Mr. Zimmermann and his associates have devised experimental methods for recovery of the sulfur and calcium values from the calcium sulfate sludge. The economy and technical feasibility of this has not been studied on a large scale.

The pilot chemical recovery operation demonstrated that:

- (1) Reactions proceeded smoothly and could be applied to commercial scale equipment, and
- (2) An economic plant could be built based on engineering data obtained.

Steam and/or Power Production . . .

Equipment has not been installed to study production of steam and/or power from the energy released during oxidation. The cost of necessary equipment would be very high and out of all reasonable proportion to the size of the pilot oxidation plant and the plant would not be large enough to give reliable data.

Small scale experiments carried out by Sterling Drug Company indicate considerable economic return from steam and/or power generation. However, a number of questions still remain unanswered. A plant capable of handling the liquor from 100 tons of pulp is probably the minimum size to give reliable cost figures.

Future of Zimmermann Process . . .

It is one of the more promising methods of the many proposed for semichemical recovery. Further study is required before final conclusions can be drawn from technical or economic viewpoints. However, at this stage in the development it seems that it will be at least competitive with other suggested processes.

There are certain definite advan-

tages compared to the other proposed methods. The oxidation equipment is far less complicated than the evaporator and furnace used in other processes. It is easy to operate and requires a minimum of maintenance and operating labor. The reactions involved in recovering the sodium are considerably simpler than those proposed for other methods. Apparently there are no undesirable side reactions.

There are two major technical problems for which there are no clear-cut answers at this time. These are (1) recovery of sulfur by calcination or some other method and (2) recovery of the available energy released by the process. Small scale experiments have indicated solutions but they must be demonstrated in full scale operation.

Final evaluation of the process will only be possible when a large plant embodying all three operations—oxidation, chemical recovery and power generation—is erected. If the development is prosecuted in a logical fashion, present indications are that the Zimmermann process will assume an important place as a means of recovery for semichemical pulping liquors.

Acknowledgment

We would like to express our appreciation to all those Hammermill and Sterling Drug employees who participated in the development. Mr. Zimmermann played a major role in the success of the plant. Significant contributions were made by Messrs. Vogel, Steinfeld, Mahaley, Major and Bliss of Hammermill and Messrs. Owzarski, Wilmarth, Diddams and Heussler of Sterling Drug.

Gives Hotel to City

International Paper Co. has presented its 6-story 200-room Hotel Monticello to the city of Longview, Wash. The Monticello, built and operated by Long-Bell Lumber Co., was acquired late in 1956 by International when Long-Bell was merged into the paper company. Many industry meetings have been held there.

For Pollution—Giant Septic Tanks

St. Regis Paper Co. has completed and put into operation twelve giant septic tanks and connecting sewers to collect and treat domestic waste at its kraft mill on Tacoma, Wash., tide flats. St. Regis spent approximately \$24,000 on the project installed with the approval of the Washington State Pollution Control Commission.

Name "Czar" for B. C. Industry

To study forestry problems and recommend legislation

Chief Justice Gordon Sloan, who on two previous occasions has been called in by the British Columbia government to study the problems of the forest industry and recommend a plan for legislative action, has now been named full-time commissioner on forest affairs for the province at a salary of \$50,000 a year, on a ten-year contract.

Announcement of the appointment Dec. 19 took the industry by surprise. Generally, it was approved, although it was realized by everyone concerned that Mr. Sloan would have no sinecure and that the creation of his new office would not automatically solve the problems of B.C.'s \$600,000,000 forest industry.

Although his new official designation is "advisor" to the government, it is generally understood that Mr. Sloan will have wide executive powers and that the government will give him a relatively free hand in determining forest policy.

Although it was not stated in the official announcement, it is obvious that the provincial government has been anxious to give the forest industry administration a stability it has lacked in the recent past and restore the prestige lost as a result of the scandals arising from the administration of Robert E. Sommers as minister of lands and forests. Sommers was recently arrested, and faces trial on charges involving alleged illegal payments in connection with forest management licenses.

In choosing Mr. Sloan as an independent "czar" of the industry, the government picked a distinguished jurist universally respected who, apart from his brilliant career in the law, has gained wide knowledge of the forest industry and administration through his service on royal commissions which twice investigated forest problems in B.C. His first commission was in 1944-45; his second, only recently completed, continued through 1955-57.

At the conclusion of his inquiry this year, the chief justice made a series of recommendations of far-reaching significance (PULP & PAPER October 1957). The government hasn't yet had an opportunity to translate any of these recommendations into law, although it will probably do so at its next session early this year, and in planning legislative action will undoubtedly be guided by its new advisor.

His Proposals . . .

One of Judge Sloan's proposals was that three regional boards and an advisory council should be established to serve the government in a consultative capacity.

The regional boards would represent the coast, northern interior and southern interior, the three distinctive and important forest areas of British Columbia.

The advisory council would comprise about 15 members and they would represent not only the regional councils but various groups such as forestry associations, woodworkers' union and major elements of the industry—pulp and paper, sawmills, logging operations, etc. The chairman of the council would be appointed for a term of not less than five years and he should be "a man of sound judgment and integrity with an impartial and objective personality, the ability to translate individuals into a homogeneous group, and the initiative and 'drive' to see that the regional boards and the council do not exist merely on paper."

Perhaps, unwittingly, the chief justice wrote the qualifications which he himself would be required to possess in his new position. In view of his recommendations, it would seem likely that one of his first acts on taking office would be the appointment of a representative group who could be depended on to advise the advisor.

PULP & PAPER Interviews C-Z on Newfoundland Mill

Crown Zellerbach is interested in entering Eastern Canada with newsprint and pulp mills in Newfoundland, and its proposal to explore such a project is now before that province's legislature.

Premier Joseph Smallwood's cabinet has already approved the company's plan to study the feasibility of establishing mills to produce at least 400 tons of newsprint and up to 2,000 tons of woodpulp daily.

P. T. Sinclair, president of CZ Canada, told PULP & PAPER in Vancouver, B.C., that if Crown Zellerbach Corp goes ahead with the program it would develop manufacturing facilities as rapidly as markets could absorb the production. The Newfoundland government would guarantee sufficient timber to maintain the company's development program on the basis of

99-year renewable leases in southeastern Labrador and in the eastern and southeastern parts of Newfoundland.

The Newfoundland timber lease would become effective when the company decides to build the newsprint mill, and the Labrador lease when it starts construction of the pulp mill. An estimated 1,250,000 cords of wood would be required annually, and the timber limits would be harvested on a sustained yield basis.

According to the agreement, CZ would complete its explorations and decide on building a newsprint mill within two years and complete a mill producing at least 200 tons of newsprint a day within three years after an affirmative decision. Within the following seven years it is hoped to at least double the capacity of the mill.

As for the pulp mill, said Mr. Sinclair, CZ would complete its exploration and decide whether to start construction of a 500-ton mill within a 12-year period after enactment of the statute. Expansion of the pulp mill to 1,000 tons a day would be envisioned within a subsequent five-year period; to 1,500 tons within the next five years, and to 2,000 tons within a third five-year period.

The company would pay the government \$2 per sq. mi. annual ground rental on its timber leases, and for stumpage payments \$1 per cord would be paid when processed within the province and \$2 per cord of wood exported without being processed within the province.



Checking Large Castings

. . . at Electric Steel Foundry Co., Portland, Ore. with new 24 million volt Allis-Chalmers betatron which gives off X-rays capable of penetrating 20 inches of steel in a matter of minutes. Enables Esco to guard against possible internal defects in castings to be used for critical applications. It is one of seven such units available to industry in U.S. and the only one west of Mississippi River. Esco also has a 220,000 volt X-ray unit for producing radiographs by use of cobalt 60 radioactive isotopes.

In South, Newest Semi-Chem Mill

Which NSSC recovery process will prove most economic? . . .
Seven ways to improve cold soda pulp. Facts on Bauerite process.

Gainesville, Fla.

● A new type of neutral sulfite semi-chemical pulp mill is starting up at the Sonoco Products Co. corrugating boxboard and chipboard mill at Hartsville, S.C., headed by James L. Coker, president, and C. W. Coker, executive vice president. Another Coker, Richard G., is v.p. for engineering and he designed one of the first semichemical pulp mills in the industry, which started up on black gum at Hartsville 30 years ago.

The old NSSC plant at Hartsville, with its leach caster, refiners, counter-current washers, secondary refiners and final refining in jordans, has been visited by PULP & PAPER editors and described in past issues.

The new mill was just described during a December Pulp and Paper Conference at the University of Florida by Charles N. Rogers, head of the engineering dept. at Sonoco.

From the chip silo, a conveyor with magnetic separator carries the chips to a chip breaker where a size reduction occurs, he said. The chips are carried through an atmospheric steamy screw, into the rotary feeder valve of a continuous digester, 8 ft. diameter by 40 ft. long. It is divided into left and right hand compartments by a center wall. In each side of this wall are two conveyor screws, one above the other.

Liquor is sprayed on the chips in the top conveyor and drains down through perforations in the conveyor trough, into the second conveyor and, finally, into a pool at the bottom of the digester. The two compartments can be operated under different cooking conditions except pressure, which is common to both sides in this case, 170 psi. Only one side of the digester is used during these startup operations. The operation is designed for 10 to 20 minutes retention in the digester. The chips leave the digester through a rotary discharge valve and blow, under their own pressure into the leach tower. Dilute black liquor flows up through the tower and chips discharge from the bottom. They are

conveyed to the presses where they are brought to 607. O.D.

The liquor is pressed from the presses, is pumped to the bottom of the leach tower. The liquor overflow from the tower, fortified in solids during its upward flow, is pumped to a fiber screen and then to evaporators. The concentrated liquor is acidified with sulfuric acid. Acetic and formic acid is recovered for sale. The acidified liquor, "raffinate," rich in sodium sulfate and high in heating value, is being sold to kraft mills.

The pulp from the screw presses is fed to the single disc fiberizers through a "runaround" conveyor. Fiberizing is accomplished in a single pass. From disc refiners the pulp is pumped to the stock chest and the paper mill, where it is blended for use with kraft (5 or 10%) or waste paper pulp.

Here are other highlights from the University of Florida conference at Gainesville, Fla.:

3 New Processes for Recovery

Mr. R. Shaffer, U. of Florida, discussed three processes for reconstituting NSSC liquor from kraft type green liquor—The Mead process in commercial trial at Watervliet, Mich., and Lynchburg, Va. (described in PULP & PAPER, Nov. 1957, page 62); the Institute of Paper Chemistry process at Big Island, Va., and Western Precipitation Corp.'s process at Wisconsin Rapids, Wis. The question: Which will prove most economic?

The small size of three out of four of the furnaces involved and low heating value of the NSSC liquor tends to make furnace operation difficult, although a much smaller pilot plant furnace was successfully operated and satisfactory operation of the small units or "smelters" seems assured, he said. These small furnaces could not economically justify boiler generating surfaces.

The Institute process, to date, involves sulfitation with sulfur burner gas and does not result in sulfur recovery. Either a direct H₂S recovery

plant or the Institute's bi-sulfite sulfitation process would be required to recover the H₂S. The Western Precipitation process is another carbonation process with the furnace used as a carbonator.

Ways for Improving Cold Soda Pulping

Kenton J. Brown, U.S. Forest Products Laboratory, told these results of work at Madison, Wis. lab.:

1. Amount of caustic soda liquor absorbed by aspen and Southern red woods is increased by (a) decreasing moisture content of wood, (b) decreasing particle size, (c) increasing hydrostatic pressure in heating vessel, or (d) removing air from the wood prior to treatment.

2. For a given yield, an increase in temperature during cold soda pulping decreases opacity of bleached pulp.

3. Increased fibrillation in disc mills decreases freeness, increases amount of fine fibers, and increases opacity of pulp.

4. Increased brightening with calcium hypochlorite decreases opacity at given freeness.

5. Increased pressures in wet pressing of bleached pulp increases density and strength but decreases opacity and brightness.

6. Screw pressing of aspen chips after treatment with caustic but before fiberizing increased brightness about 3 points and appeared to remove some characteristic yellow color.

7. Addition of anionic and nonionic surfactants to caustic soda slightly increased strength and, in some cases, brightness of pulps from Southern red oak.

Full Description of Bauerite Process at Gould Paper Co.

Le Roy J. Bauer, of Bauer Bros. Co., described the Bauerite cold soda pulping process as practiced at Gould Paper Co., Lyons Falls, N.Y. Beech, birch and maple are chipped to ¾ in. chips. Liquor is charged into a digester and brought to 150 psi by high head pump. This pressure is main-

tained 20 mins. Excess liquor is drained off. Air pressure of 50 psi blows the charge into a live-bottom bin. In the cooking cycle 2.5-4.0% NaOH, wood basis, is absorbed and approximate yield is 87-92%.

In a Pressafiner, pulp enters at 50% O.D. and discharges at 65% O.D. Power requirements are about 2.9 hp days per ton. Pressed stock is diluted to 15% consistency and passed through double disc, primary refiners. Secondary double disc refiners complete the fibrillation at consistency of 8%. Power requirements 20.9 hp days per ton in primary, 22.7 hp in secondary.

After Cowan screens, both accepted stock and rejects pass through Centricleaners. Accepted stock from reject Centricleaners is returned ahead of Cowan screens. Screened pulp, at GE brightness of 40-45, is thickened to 14% consistency and bleached in two stages. The first uses sodium peroxide at 14% consistency, 1.5 hours retention at 180°F. Stock is diluted to 4% consistency and neutralized with SO_2 . The second stage consists of a 1.0 hour treatment with 1% sodium hydrosulfite at 140°F. At the end of the treatment GE brightness is 74-78. Bleaching costs \$16.00-\$20.00 per air-dry ton. Strength is developed through a "pump-through" refiner.

Two Bleaching Methods . . .

W. J. Nolan, University of Florida, described two methods of bleaching NSSC pulps: one for 80 to 85 brightness; the other for about 70 GE brightness. High brightness pulps used chlorine, hypo and caustic in five stages. Most efficient use of chlorine involved using most of the chlorine in chlorination, he said. Total chlorine demand was 18%, dry pulp basis, used as 10% chlorine in the first chlorination stage, 6% chlorine as aqueous chlorine in the third stage, and 2% chlorine as hypo in the fifth stage. An intermediate caustic extraction between chlorinations was found to be highly desirable.

A three stage process was developed for medium brightness pulps consisting of 8% chlorine as hypo followed by 0.5 to 1.0% NaOH in an extraction stage, with 1.0% of 50% peroxide in the third stage.

How Filer City Combines Semi-Chem and Kraft Recovery

Carl W. Horst, from American Box Board Co., said its Filer City, Mich., mill cooks aspen chips in six-tube continuous digesters, each fed by a feed screw. The cooking cycle is 12 mins. at 170 psig steam pressure. Cooking chemical consists of 9.5% Na_2SO_3 , wood basis, with sufficient Na_2CO_3 added to maintain a pH of 8.0-8.5% at

the end of the cooking. Water-wood ratio is 2.5:1. The blown chips are fiberized in six single-disc refiners at 14-16% consistency. Pulp washing is carried out in a four-stage, counter-current, press washer system. Water usage is 956 gals. per O.D. tons of stock. Strong black liquor, 11% total solids, with about 1.0% of O.D. fiber, is filtered, evaporated and burned in the kraft recovery system.

Evaporation Problems . . .

W. C. Dedert and N. N. Brown, of

Swenson Evaporator Co. reported some mills now practicing cross recovery prefer handling the NSSC liquor in a separate evaporator to avoid the detrimental effects of mixed liquors in kraft evaporators.

Fouling of the heating surfaces of NSSC evaporators, they said, can be satisfactorily solved by the proper application of the long tube vertical or the forced circulation evaporator. The choice between the two is based on economic factors.



Help is But a Microphone Away

Hammermill pickup truck with 2-way radio checks material handling problem in woodyard. . . .

Two-Way Radio Speeds Mill Production

By JOHN C. WILSON
Woodrom and Transportation Supt.,
Hammermill Paper Co., Erie, Pa.

● Our problem has been coordination of production supply deliveries to meet various needs in the manufacture of Hammermill's papers.

Trying to locate our vehicles in the course of a normal busy day was like trying to find a needle in a haystack. Telephone calls, following truck routes over 322 acres of plant area in another vehicle, or cruising along 12 miles of railroad track was time-consuming and costly.

Our decision to install Motorola 2-way radio has proved to be a virtual life-saver. We put Motorola 2-way mobile radio equipment in five of our operational units—the uptown pickup truck, general service yard truck, yard diesel engine, yard staff car and the foreman's truck. It's like the difference between day and night. It almost puts you at the other fellow's elbow.

Our system is licensed by the Federal Communications Commission to operate on a frequency of 49.26 megacycles. Our base station in the yard office has an output of 60 watts and

a range up to 60 miles. We have FCC authorization for ten additional mobile units for expanding our coverage to woodlands operations.

We operate about 16 hours a day, with two dispatchers operating our base station, handling 40 to 50 calls daily. With 2-way radio communication, we can contact a truck seconds after receiving a call. When our radio system was new, it used to amaze the caller to have a truck at the scene minutes after his request.

Our yard locomotive operates almost constantly from about 7:00 a.m. until midnight. Timing its arrival at the woodroom or the paper mill is a critical factor in maintaining a smooth production flow. Formerly, we had to telephone processing points or drive around the yard looking for it. Now, 2-way radio gets the message to the engineer instantly. Help was but a microphone away recently, when a wood car became derailed.

Of course, there are always the small emergency or repair jobs that could tie up operations. A typical request might be to send out a V-belt for a motor drive. Our transportation costs have been reduced about 50%.

How to Have Effective Engineering

In the face of rising costs. Ten important considerations—whether for improvement, expansion or maintenance

By **STEPHEN J. BAISCH**

Consulting Engineer, Kaukauna, Wis.

*Written especially for
PULP & PAPER*

● Rising costs in plant improvement, expansion and maintenance are unavoidable, but effective engineering from the time a project is considered until it is completed can keep these costs from getting out of hand. This is even more true in the pulp and paper industry because the investment necessary per unit of production far exceeds that of most industries.

Thus, a greater responsibility is placed on pulp and paper mill engineers, and consequently management expects the engineers to do a better job.

What is effective engineering?

It is engineering that is complete down to the last detail. It's engineering that is thorough throughout the entire project. Here are ten practical considerations necessary to achieve effective engineering:

1. Realistic Cost Estimates . . .

We wouldn't buy an automobile or home without knowing exactly what it would cost. Management, too, wants to know as closely as possible what the project is going to cost. Thus accurate figures are necessary. Estimates should be complete on everything, including labor which represents about 45% of the cost of most major projects.

Underestimating costs can cause financial embarrassment for management, but on the other hand, overestimating may result in abandonment of a worthwhile project.

2. Complete Plans and Specs . . .

In carrying out a project, it must be decided what percentage of the job is to be on a firm-price contract and what percentage is to be done on a cost-plus basis. If plans are not

clearly defined when firm-price bids are taken, the contractors are forced to include allowances to cover the unknown so they won't be caught with unexpected costs.

Complete plans will expedite the



The author . . .

In both Thilmann Pulp & Paper Co. and in TAPPI's Engineering Division, STEVE BAISCH has had wide experience in handling important engineering projects. He is now a consulting engineer to the industry, with new offices at 104 East 2nd St., Kaukauna, Wis. It was to realize an ambition of many years that he resigned his position at Thilmann of chief design engineer, in charge of the engineering department. He was responsible for overall engineering for three new paper machines, new woodroom, new screen room, new brown stock washing, relining and replacement of digesters, etc., during the past 12 years.

Born in Ironwood, Mich., Oct. 28, 1917, Mr. Baisch graduated in mechanical engineering from the U. of Wisconsin, 1942, and served as an army major in African, Sicilian and Italian campaigns and landings in World War II. He joined Thilmann in 1945.

He was chairman of TAPPI's corrosion committee while it carried on important nationwide surveys of digester and other problems. He also was chairman of the Lake States TAPPI Section.

project, and at the same time will result in overall savings to the company.

3. Planned Logical Scheduling . . .

For any large project, there is a high capital outlay, and the sooner that the production equipment gets into operation, the sooner a return is realized on this investment. Precise scheduling will speed up the project. An important aspect of this planning is having the right number of tradespeople at the right time equipped with the right tools and equipment to do the most efficient job.

A master schedule progress chart is an indispensable tool. By graphic drawing, the anticipated progress of the project compared with the actual progress can be seen at a glance, and required changes in scheduling can be effected to meet unexpected delays.

4. Standardization of Equipment . . .

Special equipment may be necessary in certain instances, but special equipment costs more and maintenance costs will be higher. Standardizing means easier maintenance, greater availability of parts, less cost for parts, smaller inventory costs and decreased down-time.

Specifying standard equipment should be made in the design and layout stage, which gives the contractors and purchasing agents a better guide in making competitive bids. This, in turn, results in lower contractor and purchasing agent costs.

5. Proper Selection of Equipment . . .

There are many factors involved in the proper selection of equipment for any expansion project. The equipment decided upon must fulfill the present capacity desired and should meet any future expansion possibilities. Corrosion should be considered

in the selection, and the method and plan of construction should have a bearing on the choice. Safety factors are important, and finally, cost should be taken into account. Costs, however, should be realistic—"gold plating" should not be a part of the engineering aspect of any project.

6. Systematic Handling, Storing and Issuing Material . . .

The ultimate of efficiency in construction would be to have the required material and equipment arrive in the required sequence and immediately be installed with the minimum of handling. As this is impossible, a system of storing material close to the construction site is necessary, and a good records system is essential so it isn't handled more than once after it is stored.

If storing in the open cannot be avoided, special care must be taken for some machinery. Protective coverings may be required, the shafts or journals may have to be periodically turned, and some parts may have to be repeatedly lubricated. Consulting with the manufacturer of the machinery saves time and money when special procedures for handling its equipment is recommended.

7. Cooperation with Other Services . . .

During the course of a project construction, many departments of a business enterprise are involved—purchasing, personnel, accounting, insurance, maintenance, operating department, public relations, contractors, expe-

Steve Baisch's "Musts" for Effective Engineering

1. Realistic cost estimates.
2. Complete plans and specifications.
3. Planned logical scheduling.
4. Standardization of equipment.
5. Proper selection of equipment.
6. Systematic handling, storing and issuing material.
7. Cooperation with other services.
8. Complete records available.
9. Follow through with important details.
10. Final recheck.

ditors, and many others—all of which have a role in an effective and profitable completion of a project. Close cooperation with personnel from these departments will aid the engineering department to carry on the job more efficiently and at a lower cost.

8. Complete Records Available . . .

It is the engineer's responsibility to see that complete records, corrected drawings, repair parts lists and all essential operational data are made available and distributed to the right departments on completion of the project.

In addition, a complete set of records and drawings should be filed in the department assigned this responsibility.

9. Follow Through with Details . . .

There are numerous arrangements that an engineering department must coordinate in following through a

project. Proper safety of personnel during construction and at the startup of any new equipment must be obtained. Steps should be taken to provide for proper heating, ventilating, lighting and comfort of all personnel working on the new equipment or in any new building being constructed.

Arrangements must be made with insurance company inspectors, with state and city inspectors and with field service personnel required at the site.

Of extreme importance is proper training of all personnel connected with any new equipment so that full understanding of its operation is insured. All operators of the equipment must know what they are doing and be able to cope with unexpected situations which may arise.

Proper procedures for welding and cutting operations must be provided and enforced to avoid costly accidents.

Last, but not least, good housekeeping procedures should be included in a well-rounded follow-through of a project.

How Thilmany Used Effective Engineering "Musts" 1 and 5

Thilmany is a great believer in the economies gained by using stainless steel or alloy steels. Perhaps a contributing reason for this is its well-staffed engineering department, its maintenance and construction crew of 187 men and also its up-to-date sheet metal shop, which fabricates tanks of all sizes, etc.

However, Felker Bros. Mfg. Co., Marshfield, Wis., has done much stainless or alloy fabrication, including headboxes, flow boxes, collecting boxes, etc. This is true of the new No. 11 machine, where there is stainless wherever stock touches.

Type 304 extra low carbon stainless steel is a favorite at Thilmany. The visitor sees it almost everywhere. It is used, for example, for troughs for newest conveyor belts for stock in the pulp mill. Specialty Tri-Clover Zephyrweld is to be observed for large and small piping for stock in several areas.

In the pulp mill, steam rings on the tumbling-type digesters are stainless steel to prevent deterioration from combined

action of the steam and liquors. The use of stainless in the first and second effects of the evaporators makes possible use of thinner walls, providing a higher coefficient of heat transfer.

Through the entire wet cycle of paper production, the stock contacts nothing but stainless steel or Chemical Linings tile. Beater tubs, stuff boxes and piping for white water, stock, and chemicals are all stainless. On the machine itself, stainless steel is used for the flow box, inlet head box, white water pans and trays, water deflectors, rail, suction boxes and piping, mixing box ahead of the fan pump and the foam kill tank on this mixing box.

With stainless, equipment can be readily flushed and washed clean. Stock from the previous run (often of a different color) cannot adhere to insides of pipes, boxes and tanks and later break loose to spot a current run of paper.

Thilmany even uses stainless steel in the boiler house to prevent adhesion of wet coal to hoppers, feed bins and chutes.

10. Final Recheck Aids Management . . .

The decision to undertake any project is based upon certain studies which project cost savings, production efficiencies, more profit, etc.

In cooperation with the production staff the engineers should obtain actual data and make a comparative analysis with the original figures in order that management finally knows where it stands in the decisions made subsequent to the allocation of capital for the project. ●

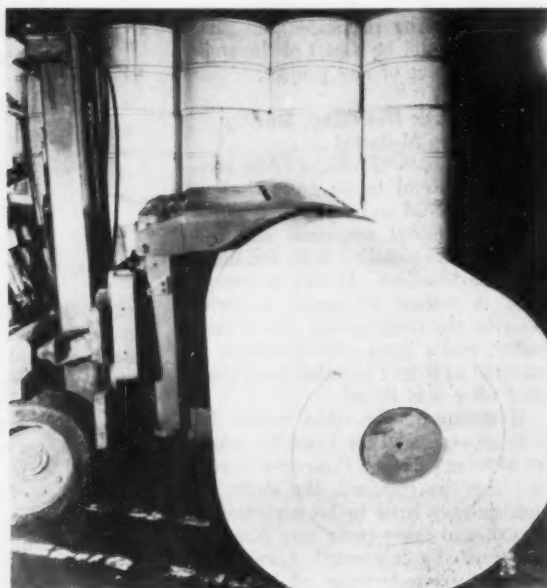
Dr. Charles F. Roos Dies

Dr. Charles F. Roos, 56, president of the Econometric Institute, Inc., and veteran economic advisor to paperboard and paper groups, and frequent speaker at Paper Week and NPA meetings, died Jan. 6 in Milwaukee after a heart attack.

How To Do It



BETTER USE OF SPACE in Weyerhaeuser Pulp Div. warehouse by stacking 3,200-lb. rolls four high with Cascade revolving grab unit.



SPACE SAVING DESIGN of Cascade grab permits close stacking of rolls for efficient utilization of storage area.

How to Convert Lift Trucks for Roll Handling

Lift trucks can now be changed to handle and store paper rolls with the paper roll clamp shown above. Made by Cascade Mfg. Co., the unit is available as a front end attachment for most any lift truck.

One of the first models of the Cascade Revolving Paper Roll Grab was installed experimentally in a lift truck operating in the roll warehouse at the Pulp Div., Weyerhaeuser Timber Co., Longview, Wash. After the successful experimental run, the grab unit was purchased for regular, continuous use in transporting and handling rolls to and from storage.

E. N. Wennberg, mill manager, reported that the Cascade grab does a better job of roll handling than had previously been achieved in this division. And other plaudits came from Fred Lau, shipping and finishing room foreman, who said that roll damage has been reduced to virtually zero.

The roll-handling units automatically adjust to a wide range of diameter sizes, can rotate grasped rolls from 90° to 360° (depending on the model) and are available in 2,000, 4,000 and 6,500 lb. capacities. The 6,500 lb. unit adjusts itself automatically for off-the-floor handling of rolls from 10 to 60 in. diameter.

Other features of the unit: Pilot-operated check valves assure positive clamping pressure until releasing the load. Contact pads have a high-friction, durable surface. These combine to ease positive handling at

minimum clamping pressure, to eliminate dropped stock and minimize roll distortion and wrapper damage.

The Cascade roll grabs are available through most American lift truck manufacturers and their dealers.

1,000 Ft. Pipeline Tailored to Fit Channel ... Floated to Position and Sunk

A massive footnote to the story of building the Weyerhaeuser Cosmopolis, Wash., bleached sulfite pulp mill (PULP & PAPER, July 1957) is the account of laying the 2½-mile 48-in. pipeline to supply water to the mill from Lake Aberdeen.

The trickiest part of the job was crossing the Chehalis River, 1000 ft. wide, 40 ft. deep, with 100 ft. of 2:1 slope on one bank and 120 ft. of 17% grade on the other.

After careful planning and preparation, it was decided to assemble the crossing section in one piece, tow it to the crossing site, and sink it in place.

Final assembly was done on an abandoned dock of the Hoquiam Lumber Co., in the Hoquiam River, which flows into the Chehalis not far



ASSEMBLING ANGLED SECTION of crossing pipe, to fit grades near the river banks. Assembling was done on this abandoned dock.



CONCRETE "DOUGHNUTS" USED
... Derrick lowers top half of a concrete collar to weight down pipe.

from the crossing site. Timing was critical, because the piles on which the job was done are under water at high tide, high and dry at low tide.

Only three hours were available for welding bulkheads in the open ends of the pipe and attaching the lines to tugs. It was touch and go, but the job was successfully accomplished, and the pipe was floated at 8:15 p.m. one evening. Towed to the crossing site by two tugboats, it was weighted down with 31 huge concrete collars, 78 in. square by 38 in. thick, made in

halves and the top halves lowered on the pipe by floating derricks.

The crossing pipe was a ½-in. steel shell spiral-wrapped with ¾-in. steel rod, lined with ¾ in. of concrete and coated with 1 in. of concrete. It was supplied by American Pipe & Construction Co. from its Portland, Ore., facility. General Construction Co. of Seattle was the contractor.

It took a major engineering job just to supply this new Northwestern pulp mill with the 30,000,000 gal. of quality processed water it uses daily.



PIPELINE BEGINS TO SINK ... Fully weighted, the pipeline turns as it goes down.

How to Save Safety Director (and others) from Backing Truck

A bark disposal truck backing down a ramp and into the hopper shed creates a dangerous situation at many mills—just as it did at Minnesota and Ontario Paper Co. mill, International Falls, Minn. In the background of the photo at left, D. L. Eisenach, safety director, is walking from the main walkway from the grinder room and bark disposal burner.

Only one man is on this bark truck

because it does not operate outside the mill yard. A big blind spot in the left rear makes the driver unable to see anyone coming from the grinder room and bark disposal burner area.

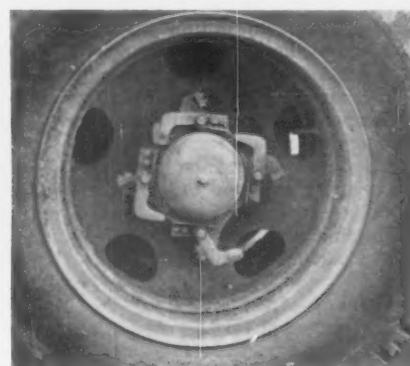
The photo at right shows a closeup of an automatic back-up alarm which has been attached to the right rear wheel of the truck. When the vehicle is moving forward the hammers fall against rubber stoppers and are held there by centrifugal force. When the

vehicle moves in reverse the four heavy metal hammers fall against the bell once every quarter revolution of the wheel. The alarm rings loud and clear, warning Mr. Eisenach or anyone else behind the truck.

The back-up safety alarm is manufactured by the E. D. Bullard Co., 275 Eighth St., San Francisco, Calif. Mando is installing them on all trucks that operate primarily in and around the mill yard.



Man in Danger ...

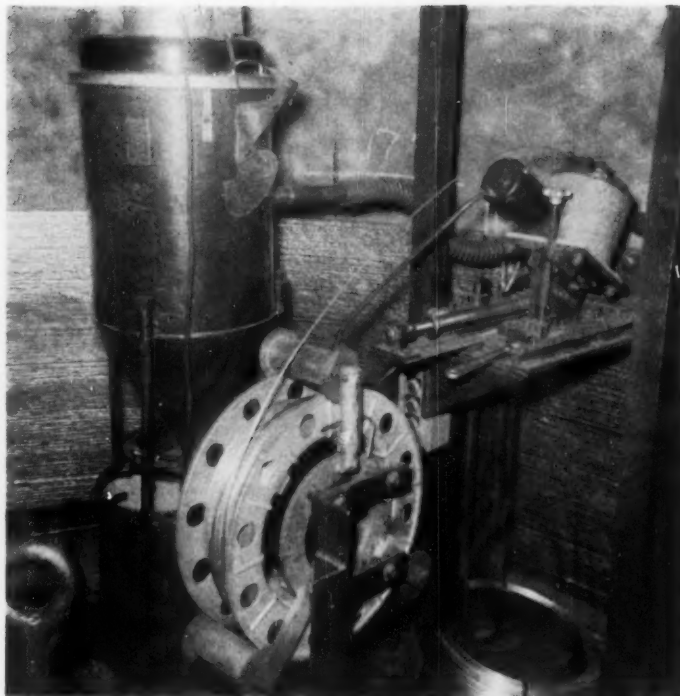


Gadget that Saves Him ...

It's Here!
Continuous, Automatic
Welding for...

Digester Overlays

**Major breakthrough
in protecting kraft
digesters accomplished
in a Southern mill**



New Life for Old Digesters . . .

This is Alloy Cladding Co.'s automatic welding unit. Reel feeds welding wire to submerged arc welding head. Granulated flux is dropped by gravity from hopper supported by tranchions. Vacuum system at left serves as flux recovery. Submerged arc welding permits use of higher current, faster travel speeds and more sq. ft. per arc hour. Note uniformity of continuous overlay.

● A completely automatic welding unit using a submerged arc process has successfully overlayed a kraft digester at a Southern mill.

In quick succession, two more digesters in this mill were overlayed. Pleased with the job, this Southern mill promptly drew up a second contract for overlaying an additional three digesters.

How It's Done . . .

The welding head is mounted on an operating platform on top of a circular track which can rotate at any desired speed, through 360° and thereon. The platform turns a vertical lead screw the desired amount for proper indexing through a gear train.

The arc is maintained at a set horizontal distance from the digester walls by a spring loaded assembly which traces the contour of the digester and is mounted to the vertical indexing lead screw.

This method was developed by Alloy Cladding Co., Baltimore, Md.

No Fouling of Lines . . .

It is important that all connections are introduced into the digester through a hollow center shaft with slip rings and commutator brushes.

As the platform rotates, the welding flux is deposited from hoppers by gravity on belt assemblies attached to the horizontally moving spring loaded units. These belts conform to the roundness of the digester and are friction driven so that their relative motion with respect to the wall is zero. This is necessary since the molten metal tends to flow with any movement of the flux.

Bare electrodes (any weldable grade of stainless steel can be used) are fed from a reel to the automatic welding head which essentially consists of a gear head motor with guide tubes to the point of welding. The head is mounted on the spring loaded moving unit.

Operation is completely automatic through the length of the lead screws or until the material has been consumed. After the length of the lead screw has been traversed, the fixture is raised and the process repeated.

Can Control Production Rate . . .

As in any welding technique, the amount of metal deposited depends upon the current used and the units travel speed. Voltage usually determines bead shape and is adjusted as required.

Thickness of the deposit depends upon the rate of metal applied and can be controlled within limits (at present 3/16 in.).

The chemistry of the deposits can be controlled within reasonable limits by the addition of alloying elements in the flux or control of the base metal in the puddle. As the molten metal produced by the arc is a mixture of electrode and base metal, the result will be different than the electrode used.

Welding Techniques . . .

For those unfamiliar with various welding processes, Hugh Y. Rienhoff explains that for most arc welding application, a "shielded" arc which excludes nitrogen and oxygen from the molten metal is used.

Shielding is usually done by:

1. *Extruded electrodes.* A coating is applied to a metallic electrode which, when subjected to the heat of the arc, generates an inert gas and protects the molten metal from the atmosphere.

2. *Inert gas.* Inert gas such as helium or argon is fed into the area of the arc and protects the molten metal. Bare electrodes are used.

3. *Submerged arc.* Bare electrodes

are fed into a layer of granulated flux which performs the same functions as the extruded coating.

A major advantage of the extruded electrode and submerged arc methods in the ability to pick up alloying elements from the coating or flux.

Automatic overlaying by arc welding has been used extensively for building up worn steel rolls, hard surfacing parts subject to wear, applying stainless steel to surfaces subject to corrosion, etc. But, most of this has been "downhand," that is the overlay has been applied to a horizontal surface.

Features of Automatic Overlaying

The work or the arc must move with constant speed. The arc must be indexed a desired amount after each pass has been completed. Electrode, gas and/or flux must be fed automatically to the arc. To be completely automatic, this should be accomplished continuously and without manipulation of an operator.

At the Southern mill where Alloy Cladding did the work described, the director of maintenance told PULP & PAPER, "We're happy with the job. I think it's the process of the future."



Zouck

Rienhoff

Peter G. Zouck and Hugh Y. Rienhoff saw possibilities of automatic welding for digester overlay, designed machine and went into business as Alloy Cladding Co., Inc., financing themselves.

Young Men with a Vision

Hugh Y. Rienhoff, 29-year-old engineering graduate of Johns Hopkins University, was working at Reid-Avery Co. when he first heard about an automatic welding head that had possibilities for overlaying digesters with a continuous flux coated wire. He tried to work it out, became interested in the potentials.

Peter G. Zouck is an engineering graduate from Harvard U., and like his partner did some graduate engineering.

He was manager for mechanical dust collector sales and engineering of the

Koppers Co., when he and Mr. Rienhoff started to talk about the automatic welding process. On his own, Mr. Zouck made a market survey of the potentials.

Working together in a laboratory, the two young men designed their machine. The day it was delivered, they quit their jobs.

That was in Oct. 1956. Working 12 to 14 hours a day, six and seven day weeks, they completely re-designed the machine. Their "digester" was a cylinder rolled to 10-ft. diameter. In March 1957 the machine was in production order and they were in business.



Mountain of chips and carloads of chips for Georgia Pacific

Begins Manufacture of Pulp and Liner

The new Georgia-Pacific Paper Co. pulp, paper and board mill at Toledo, Ore., began production of kraft pulp in rolls and liner in December and was to run bag and sack stock and counter rolls of wrapping paper in January.

This \$22,000,000 plant has been under construction 18 months on reclaimed swamp land, and will be in

full-scale operation in March. Capacity is 250 tons a day. It is equipped with the largest Black-Clawson machine on the West Coast.

To avoid pollution, a 7½ mile pipeline, 16 in. diameter, has been laid a quarter mile into the Pacific Ocean off Newport, Ore., near that city's sewage line. Ocean currents assure that efflu-



ent is carried away from shore.

An electrostatic precipitator, with 120-ft. high stack and a Peabody gas scrubber, in combination with an intermediate scrubber, recover gases and lime dust.

Chips are blown through a 600-ft. long elevated pneumatic pipeline from the G-P lumber and plywood mills across a cove of Yaquina Bay.

Annual payroll at the kraft mill will exceed a million dollars. H. Stuart Daniels is president of Georgia-Pacific Paper Co. W. J. (Bill) Shelton is vice president and mill mgr.

PACIFIC COAST SUPTS. REPORT



NEW OFFICERS of Pac. Coast Supts. are congratulated by retiring chairman Jack V. Savage (right), CZ Camas. (l. to r.) Chairman Henry W. Dautermann, Longview Fibre Co., 1st Vice Chairman Frank R. Hamilton, Simpson Paper Co., 2d Vice Chairman Glen D. King, Crown Z West Linn., Secy.-Treas. R. Burke Morden, Morden Machines Co. Not present Louis W. Pumphrey, Westminster Paper Co., 3rd vice chairman.



LUNCHEON SPEAKER was Erik Ekholm, vice pres. of Puget Sound Pulp & Timber Co. and Ketchikan Pulp Co., who told Supts. convention in Seattle that organizational morale needs program free from company politics.

How Longview Fibre Staff Solved 7 Problems . . .

On New No. 7 Kraft Machine

Other Seattle Subjects: Continuous Cooking; Cost Reduction . . .

● At Longview Fibre Co.'s kraft mill, careful advance planning, training and testing aided in getting "paper on the reel" just a half hour after the crew tried to start up the new No. 7 paper-paperboard machine.

"But in a few hours we began to find out about many things which were not satisfactory," Delos D. Wil-

ma, asst. paper mill supt., told the fall meeting of the Pacific Coast Division of APPMSA, held in Seattle in December.

The problems and how they were handled:

1. Air-binding in stock pumps—improved by installing vents at pump inlets and machining wear plates to

increase leakage;

2. Binding of fan pump by abnormal amount of air in stock from Bauer Cleaners located on operating floor—alleviated by throttle valves in accept line, so cleaners discharge against low pressure (in contrast to natural suction which previously pulled air and rejects from cleaners);

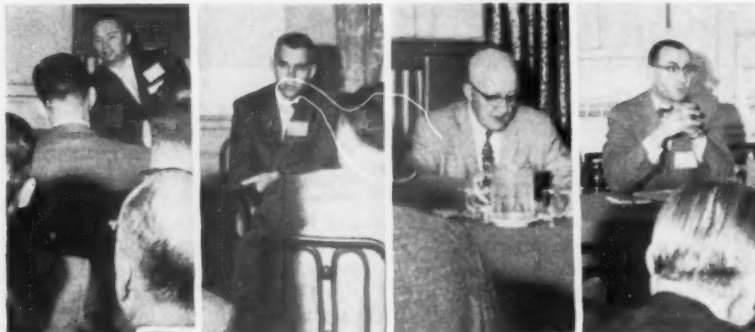
3. Calender troubles—corrected by uniformly grinding all the rolls;

4. Troubles with hydraulics on presses and reel—practically eliminated by trial-and-error, expert help, substituting some valves and fittings;

5. "Worms" or streaks on sheet following pattern of grooved table rolls operating after forming board—temporarily eliminated by moving rolls to dry end of forming area;

6. Worms re-appeared but without definite pattern—eliminated by giving deflectors $\frac{1}{4}$ to $\frac{1}{2}$ -in. clearance to prevent build-up on top edge;

7. Wet streak in sheet, consistently in same place—apparently cured by repositioning first dry section's vapor absorption system high jet air nozzles so those on front and back exactly



SEATTLE ROUND TABLE SCENES (from left): Peter P. Taranoff, Crown Z St. Helens, for papermaking; Russell H. Graff, Longview Fibre, for kraft pulping; Thomas H. Grant, Publisher's Paper, for sulfite pulping; E. G. Weed, CZ St. Helens, for finishing-converting.

oppose each other and removing nozzles for jets to provide maximum air at reduced velocity.

Longfibre's No. 7 machine, consisting of components built by several manufacturers, has rated speed of up to 2,000 fpm, making a sheet up to 170-in. wide. It was designed for making "practically every kraft product, including bag, wrapping, asphalt, waxing, and creped papers; paperboard, solid color and lined; and pulp," according to Mr. Wilma.

Harry E. Weston, secy.-treas. of AP&PMSA, emphasizing industry progress, noted the accelerating rate at which science has been coming into pulp-paper-paperboard manufacture.

Effective Cost Reduction . . .

. . . in the DuPont Co. has resulted, according to Roy M. Barnes Jr., DuPont sales promotion manager, from developing cost consciousness in "all employees . . . not just among supervisors and management."

Ferret out likely sources for cost reductions with check lists, establish dollar goals for 12-month periods, and provide supervisors with cost data, he suggested.

Ground rules should be developed. "No sacrifice of quality" heads this list.

The DuPont program is unified by a cost reduction coordinator who "wraps it all together." Reporting directly to management, he is responsible for training supervisors in work simplification techniques and runs a suggestion system in which all employees participate. The coordinator uses posters, plant newspaper, movies, and participates in plant meetings.

He believes most any firm can effect 10% cost savings through such a plan.

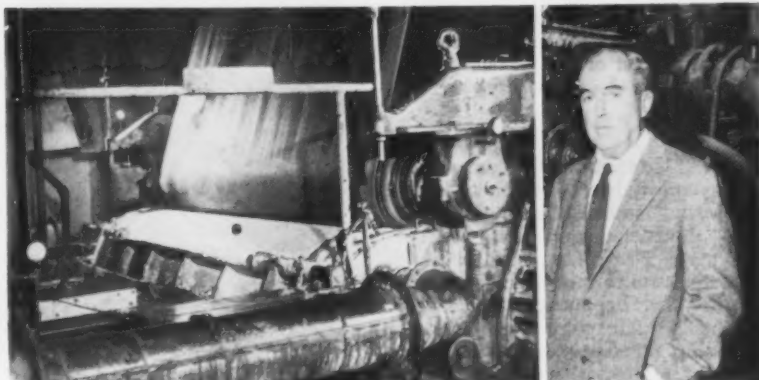
A DuPont plant employing 6,800 people reduced a \$125,000 annual cost of gloves 20%, cost of lead pencils (38 per person per year) were reduced 10 to 15% by issuing mechanical pencils, and the plant's \$5.7 million annual power cost was reduced \$876,000.

Paper Merchant Must Cut Costs . . .

. . . said Charles A. Gimblett, Zellerbach Paper Co. He suggested improving paper manufacture by making production "less of an art and more of an exact science."

He said the "sputnik" in the paper industry's universe is "polyethylene."

"The merchant of paper must get his costs down to compete with new plastics that are appearing on the market," he said. "The petroleum industry with its inexpensive petroleum gas or by-products as raw material for poly-



ORIGINAL STEVENS FORMER operating at about 1,000 fpm. Pipes in foreground provide suction connections to maintain vacuum in forming mould and for suction pick-up roll over cylinder which removes sheet from wire. At right, inventor SAMUEL S. STEVENS, son of former President Frank L. Stevens of Stevens & Thompson Paper Co., who got idea for his Former in the S&T lab back in the '30s; joined Erving in 1949 and developed it there.

Coast Supts. Hear How Stevens Former Combines "Best" in Fourdrinier and Cylinder

Crown Zellerbach and Beloit Iron Works adapted the Stevens Former, with an ingenious assembly line finishing system, to make tissue and napkins right off the "Little Machines That Dared to Run Away from Home." These are in the Los Angeles and Antioch, Calif., CZ mills, far away from the "homes" of pulp and paper and pulpwood forests, yet right at doorsteps of housewives in great paper market areas.

"Key" to Little Machines . . .

The Stevens Former is "key to the little paper machines," Reeve C. Morehouse, CZ Central Engineering Office, Seattle, told the Coast Superintendents. He is project engineer for small tissue-toweling machines, for CZ. The Former, as CZ uses it, has a wire-covered cylinder in which low vacuum is carried, he said. A special curved slice, receiving low-consistency stock from an air-cushion type headbox, delivers to the wire. Extensive forming takes place within the one-foot space covered by the slice and only about an inch of "water" shows beyond the slice lip. Beyond that point the sheet has a dry appearance.

A pick-up felt picks the sheet from the cylinder wire by means of a rubber-covered suction-pressure roll and transfers it to a Yankee dryer through use of a rubber-covered suction-pres-

sure roll.

In the case of Crown's Los Angeles tissue machine the entire drying takes place on the Yankee and the paper goes directly through calender stacks onto a reel. Over-all length of this Beloit machine, including distributor box and reel, is 38 ft. 5 in.

How Antioch Uses Former . . .

In producing toweling on the new Beloit machine at Antioch the sheet is creped off the 10-ft. Yankee dryer for final drying in an after-dryer section. Of the machine's over-all length (approximately 112 ft.), the after-dryer takes up some 60 ft. and the forming unit about 12 ft.

Vacuum applied in the forming cylinder, according to Mr. Morehouse, is an important factor in quickly removing white water from wire and fiber and helps in forming and holding the sheet. Consistencies range from less than 1% of one percent for tissues to 2% of one percent for 32-lb. toweling. Stock velocity in the combination slice-forming area approximately duplicates speed of the cylinder wire which has reached 1350 fpm in tissue production.

Erving Paper uses the Former in making 10 to 32-lb. paper and Fibreboard Paper Products Corp. uses this equipment for producing board at its Stockton, Calif., mill.

ethylene may be a threat to the paper source—trees. In many instances, plastics will do a scientific job better than paper and if the costs to produce the film, or the cost of the raw material, continue to go down, we have a real threat."

Merits of Continuous Cooking . . .

. . . compared to the batch system, are "many," according to A. C. McCorry, production mgr., North Western Pulp & Power Ltd., now serving his fourth term as a national vice pres. of APPMSA. Reporting on cooking bleachable kraft pulp with Kamyr continuous digesters—two in his new mill produce 275 tons each of Alberta Hi-Brite daily—Mr. McCorry gave a paper he previously presented at the Alkaline Pulping Conference in Charleston, S. C. (see PULP & PAPER, Jan. 1958 issue, p. 58-60).

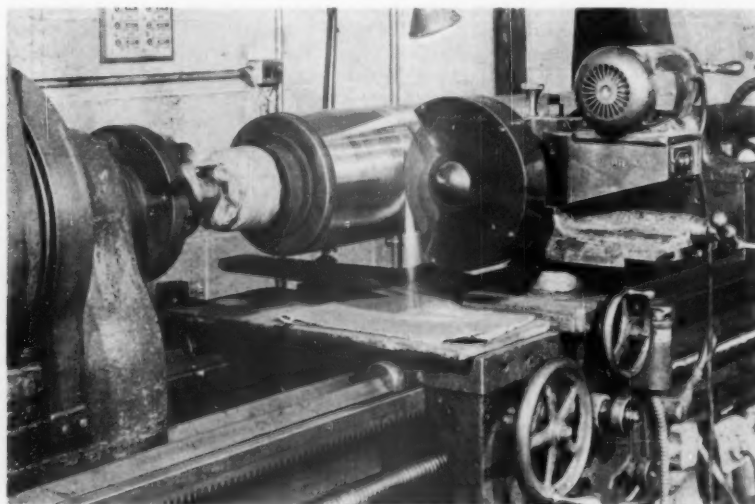
A corrosion-inhibiting factor pointed out by Mr. McCorry results from the use of blow steam for preheating chips in the low pressure steaming vessels at Hinton. In these units, air is eliminated from chips and the temperature differential between incoming wood and the liquor (in top of digester) is reduced. ●



Ches Pederson Bill Coster

Honorary Migratory Peddler . . .

. . . is N. W. (Bill) Coster, here being sworn in by Ches Pederson (Electric Steel Foundry Co.), president of Waiting Room No. 2 of the Peddlers organization, based in Seattle, an industry cooperative service organization of supply and equipment salesmen. Mr. Coster was honored for over 30 years' as engineer, supt. and mgr. in the West Coast industry. He came to U. S. from Sweden in 1923 after studying at Chalmers Institute of Technology in Gothenberg and working in Scandinavian mills. He was with Fidalgo Pulp Co., Anacortes, Wash., and joined Soundview in Everett (now Scott) in 1934, rising to tech. director and gen. supt. of this largest sulfite mill in the world. Since Scott took it over and added a paper mill at Everett, Mr. Coster continues as pulp mill manager.



Converting Standard Machine Tools to Big Capacity Grinders

Bird and Sons, Inc. roofing products mill at Charleston, S.C., uses this tool post grinder for refinishing rolls of its roofing paper machine. Previously, this work was farmed out but valuable time was lost in transit to and from a local shipyard. Jobbing out expenses were also great. In addition, delays were common because of the regular production schedule of the shipyard.

The grinder, made by the Dumore Co., Racine, Wis., is mounted on

Bird's 20-in. lathe and the entire set up and refinishing can be done in less than eight hours.

The grinder removes 1/32-in. from the diameter of the roll during each refinishing operation. It has a compact, lightweight 3 hp induction motor with double V-belt drive, built-in wheel height adjuster, greasesealed taper roller bearings and a 12-in. dia. by 1.5-in. wide grinding wheel. It has a push button type magnetic starter

with a safety overload protector and can be mounted in any convenient position, such as lathes, planers, shapers, mills and other machine tools.

Laminator "Last Word"

Crown Z's Western-Waxide plant at San Leandro, Calif. has a new Inta-Roto laminator which the company announced as "the last word" in producing precision laminated and coated flexible packaging materials. The machine will be used to produce foil fiber can label stock, foil carton overwraps, foil pouch material for use on automatic packaging machines, foil breadwrappers and foil bags.

Acquires Sutherland Line

The Black-Clawson Co. has complemented its line of refining equipment through acquisition of the Sutherland refiner, breaker trap, and pressure washer business in the United States, Canada and certain overseas markets, announces Karl F. Landegger, B-C chairman.

The Sutherland firm, Trenton, N.J., is a 20-year-old supplier of paper-making machinery. Black-Clawson will center the sales and servicing of the Sutherland line in the Shartle Division, Middletown, O., Pandia Division, Hamilton, O., and Black-Clawson (Canada) Ltd., Montreal.



PLASTIC COATED RIGID STEEL CONDUIT ended problem of corroding electrical raceways at Southland Paper Mills.

Southland Paper Mills Uses Plastic to Lick Conduit Corrosion for Keeps

● A protective network of 250,000 pounds of plastic coated galvanized rigid steel conduit has stopped costly corrosion at Southland Paper Mills, Lufkin, Tex., ending a once necessary program of continual conduit replacement.

At one time Southland housed power and lighting circuits in steel conduit. In certain locations, standard type conduit was so badly corroded by moisture and fumes, it had to be frequently replaced.

Searching a solution, plant engineers installed a "trial run" of plastic coated steel conduit. Five thousand feet of Dekoron-coated rigid steel conduit were supplied by the Steel & Tubes Division of Republic Steel and installed in trouble spots of heaviest fume concentration. Today, three years later, the "trial run" conduit is in excellent condition. It has required no maintenance, say Southland engineers, and bears promise of continued usefulness.

The Problem . . .

A big producer of newsprint, the mill discharges tremendous amounts of steam, moisture and chemical fumes into the air. Three years ago, the plant sought to stave off effects of these fumes by a continual painting of conduit with insulating varnish. Still, conduit in the areas of heaviest concentration had to be replaced frequently.

Even such a program could not keep up with the spread of corrosion over thousands of feet of galvanized steel

conduit. To renew several or more runs of conduit, essential lighting and power lines were put out of commission temporarily, and sometimes machines were down.

While repair was going on in one spot, moisture and corrosive fumes were going to work in a dozen others. Even a pin hole in conduit permitted corrosive atmosphere to attack the insulation on wires inside the raceways. This set up an electrolytic action which helped speed up the corrosion of the conduit and interfered with conductivity. Flakes from a corroding section could be dislodged upon receiving a jar and fall into a batch of pulp.

One trouble area was at the four digesters. (A fifth 2750 cu. ft. unit has since been added.) Sulfurous acid and mercaptan fumes attacked conduit inside and outside the plant. Reactions of the digesting cycle resulted in discharge of corrosive lignin sulfate. Hypochlorous acid fumes and chlorine dioxide fumes from the bleach plant were other corrosion causes, as well as steam, moisture, and water.

The Solution . . .

The 275,000 lbs. of Dekoron-coated Galvite rigid steel conduit used at the mill represent about 125,000 ft., in sizes ranging from ½ to 4 in. It is galvanized inside and out, and coated with polyethylene a minimum of .020 in. thick. Excellent chemical, electrical, mechanical and thermal properties make it unusual in its insolubility and inertness to many chemical reagents.

Saskatoon Mill Starts Up Making Strawboard

Prairie Fibreboard's new plant near Saskatoon, Sask., has started production of strawboard and by early spring also will be manufacturing hardboard from wood, according to Managing Director G. D. Sinclair.

The \$3,300,000 plant is expected to produce about 20,000,000 sq. ft. of strawboard annually and 12,000,000 sq. ft. of hardboard when in full operation.

Main suppliers of equipment were Dominion Engineering Co., Black-Clawson Canada, Canadian Ingersoll Rand, Electric Tamper Equipment, Ross Engineering Co. of Canada, Coe Manufacturing Co., Dominion Bridge Co. and Trimont Corp.

Consulting engineers were Stadler, Hurter & Co., with W. C. Wells Construction Co. as main contractor.

Ray Hauer is president of Prairie Fibreboard, Ltd. Other officers are V. G. Ellis, vice pres. and controller, L. N. Greer, secy.-treas. and L. M. Teed and J. I. Young, directors.

A farmer could make up to \$2,000 a year selling straw to the plant, according to company officials.

The straw is mixed with water and sodium hydroxide and pulped. After refining and washing, with waterproofing ingredients added, the stock has excess water drained off and then passes into a board forming machine. The dryer is fired by natural gas and the drying process takes about two and a half hours.

Hardboard will be produced in an entirely separate line.

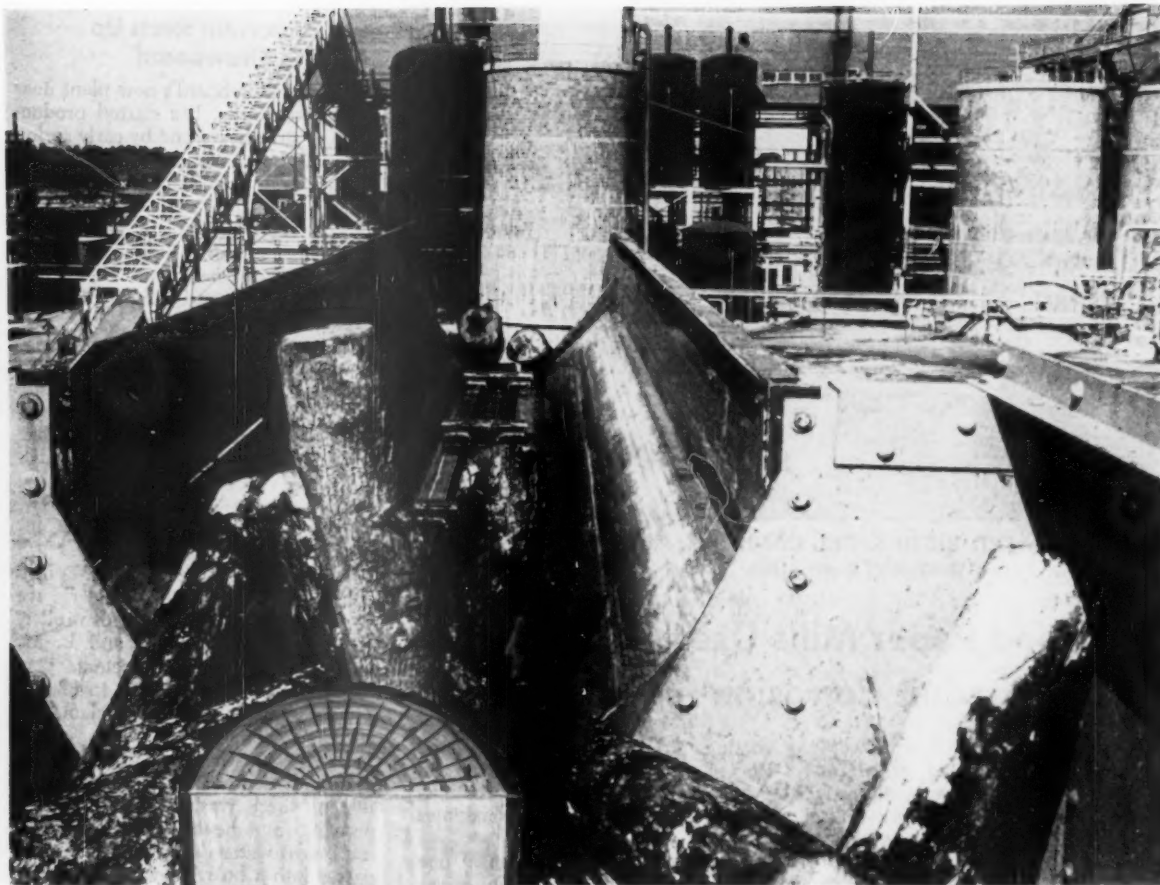
New Duplex Grades Made by Strathmore

The first solidly made duplex and first duplex of any kind in cover stock at 80 lbs. is now being made at Strathmore Paper Co.'s West Springfield, Mass., mill on its No. 3 special cylinder machine.

These new duplex items are unwatermarked, plain edge with antique finish. They are made in six colors. They are used for covers of various sorts of booklets, for die cut announcements, menus, etc.

Supts. Meet in Alaska

Sulfite superintendents group of Pacific Coast Div., The American Pulp & Paper Mill Supts. Assn. held its fall meeting at Ketchikan Pulp Co., Ketchikan, Alaska. Chairman Thomas H. Grant, Publishers' Paper Co., Oregon City, presided. Fourteen men representing ten sulfite mills of Ore., Wash., B.C. and the territory attended. Among the subjects covered were pulping, bleaching and screening.



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Now it is converted into paper, which brings enlightenment to millions.

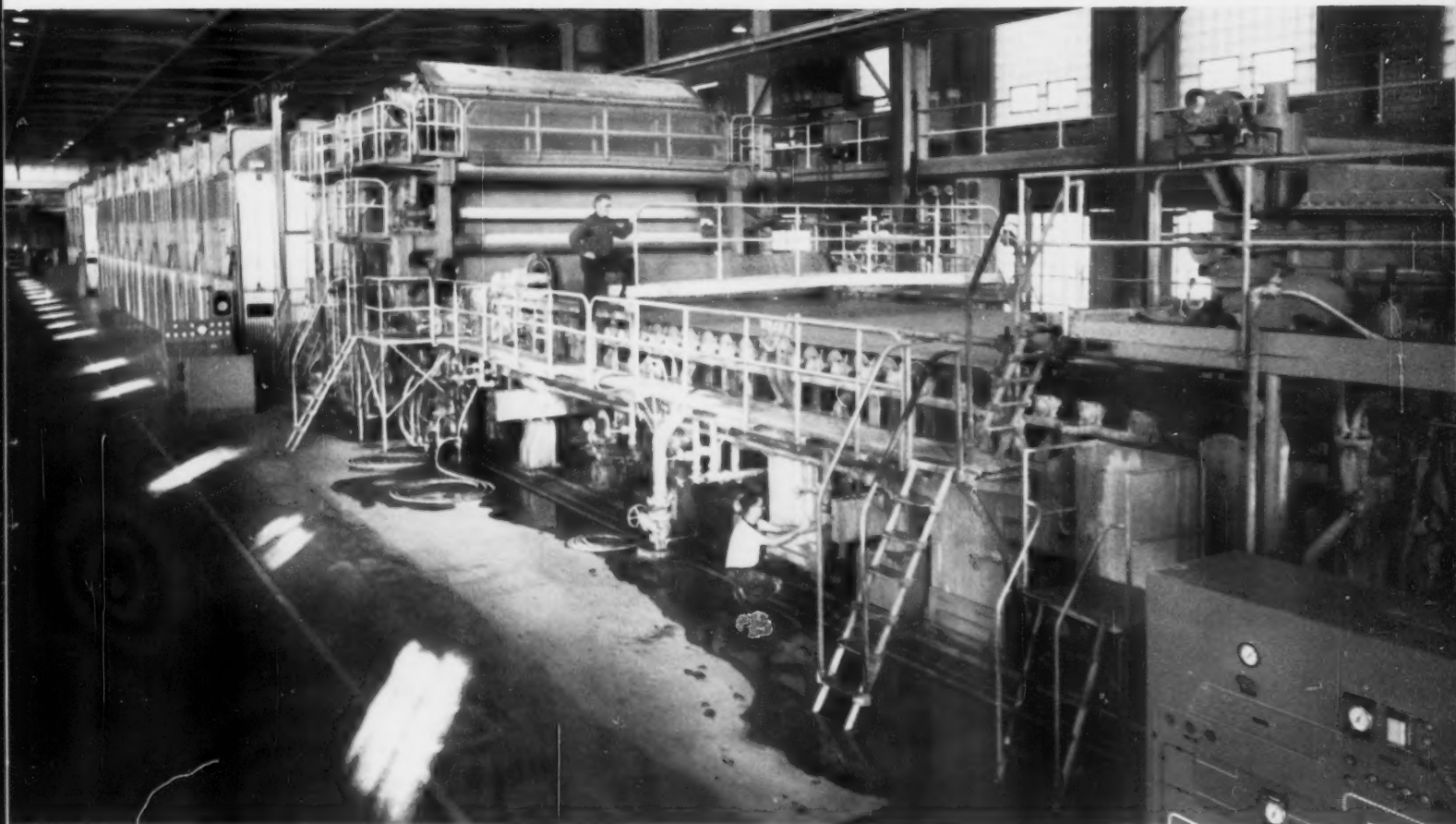
The means is cellulose processing in which fabricated steel products from Wyatt's shops are essential.

Wyatt's Plastics, Inc., for the application of plastic and rubber products in paper making.

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SINCE 1913



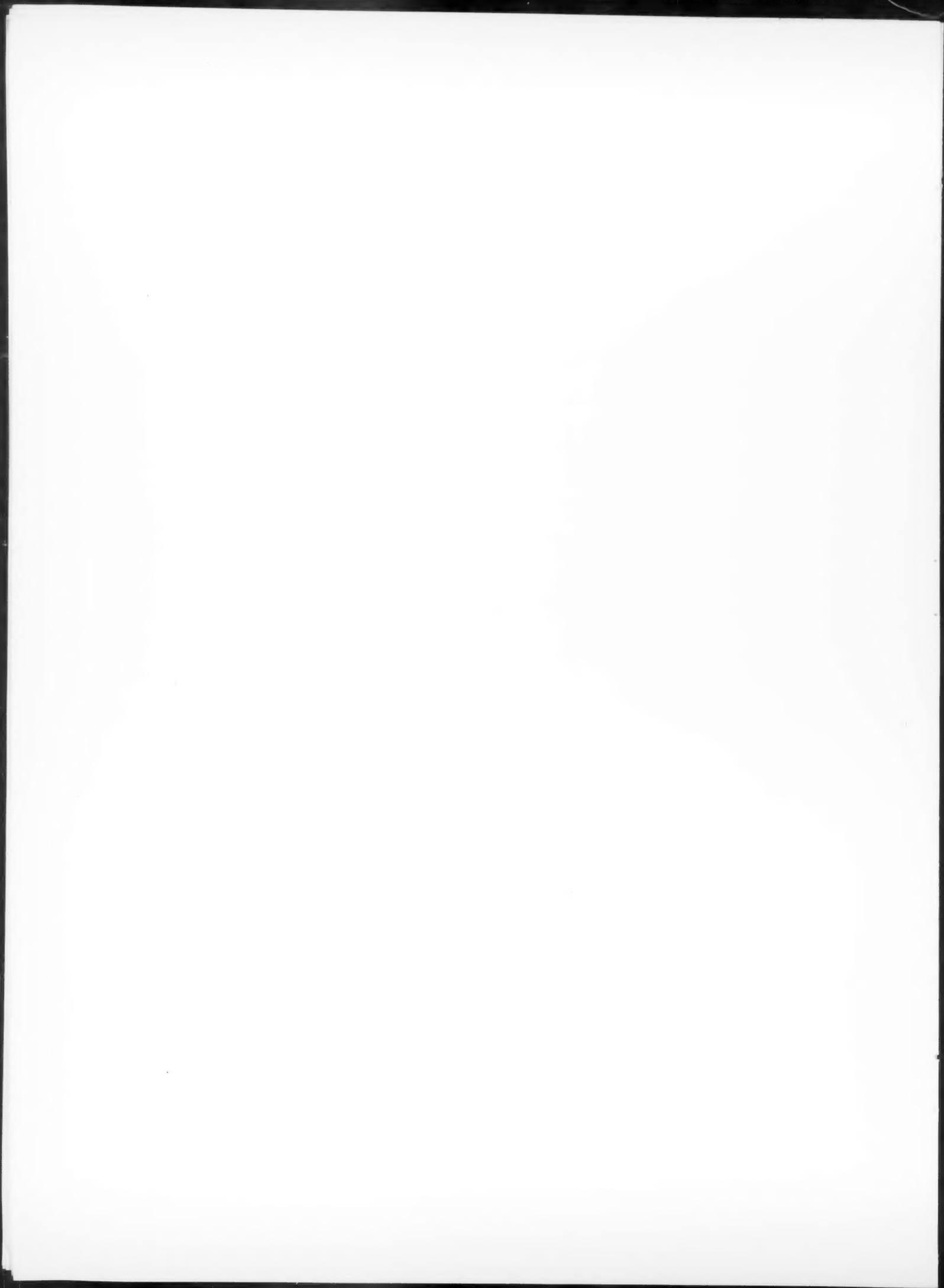
**100
YEARS**
1858 - 1958



#5 MACHINE, BIRON DIVISION, BIRON, WISCONSIN. PHOTO BY J. W. MILLER

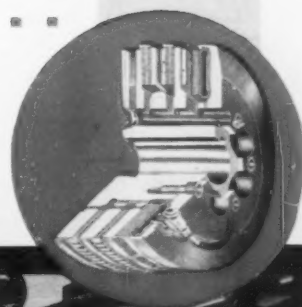
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**"MORE EFFICIENT OPERATION . . .
LOW COST INSTALLATION . . .
LESS MAINTENANCE . . ."**

States Engineering Dept., R. Hoe & Co., Inc., New York



Pictured above is a huge new multi-color Rotogravure Printing Press built by R. Hoe and Company on which WICHITA Clutches are used. Previously, electro-magnetic clutches were used requiring explosive-proof housings, special wiring, etc.

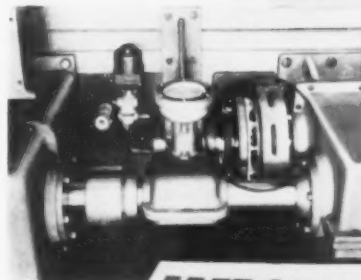
When clutch changes were planned by Hoe Engineers, WICHITA was specified, because of their "MORE EFFICIENT OPERATION, LOW COST INSTALLATION, AND LESS MAINTENANCE." This is one more example of how and why WICHITA Clutches are being specified and used on modern equipment.

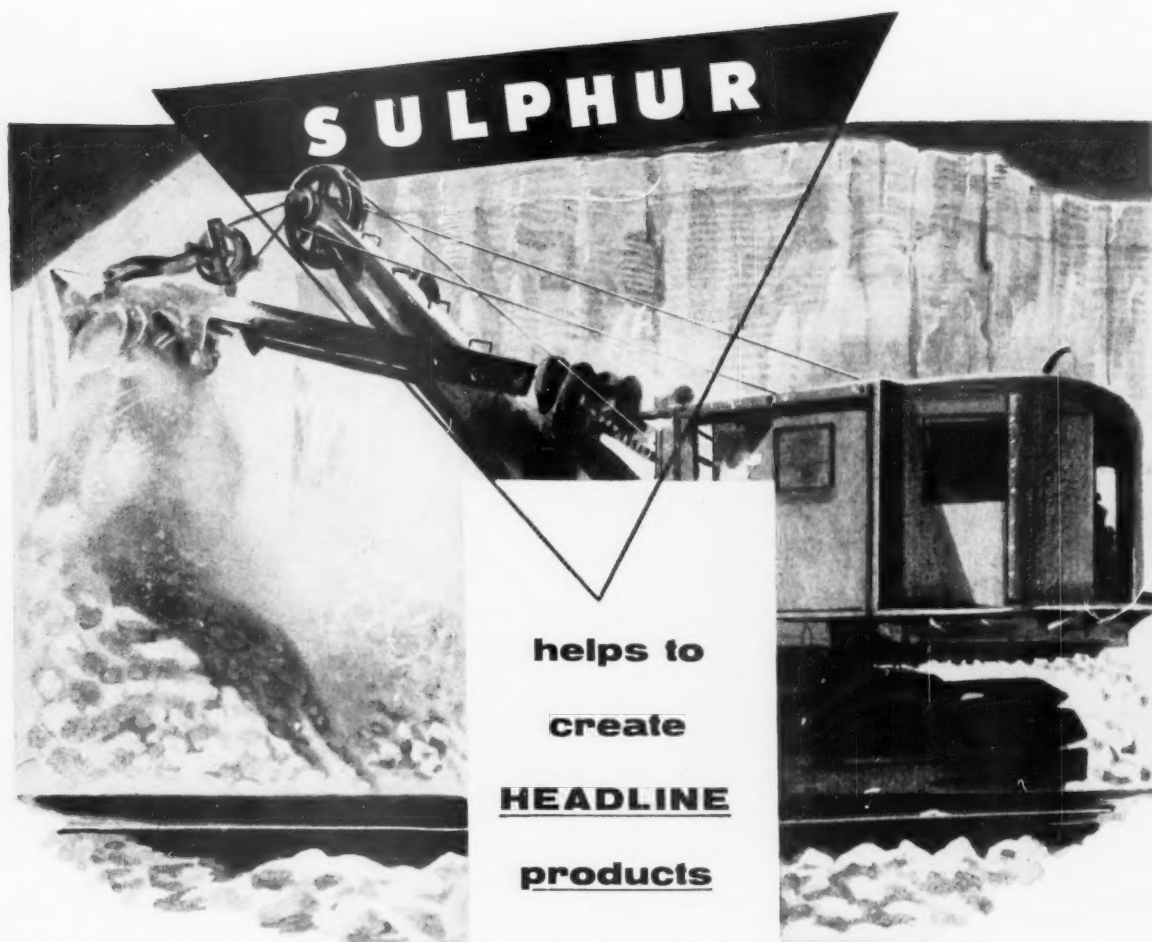
For Right: This Wichita Clutch is mounted on a vertical shaft in the drive for the pulling rollers at the folder on the Hoe Press.

Near Right: Here a Wichita Clutch is shown on the steam drum drive of the Hoe Press.

For starting, stopping, or controlling tension, check with your nearest WICHITA engineer!

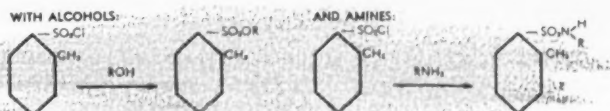
Brehm-Lahner, Inc., Detroit, Mich.
L. H. Fremont, Cincinnati, Ohio
W. G. Kerr Company, Pittsburgh, Pa.
Smith-Keser & Co., Avon, Conn.
Philadelphia 44, Pa., & New York, N. Y.
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Andrew T. Lobel, Denver, Colorado
Robert R. King Co., Cleveland, Ohio
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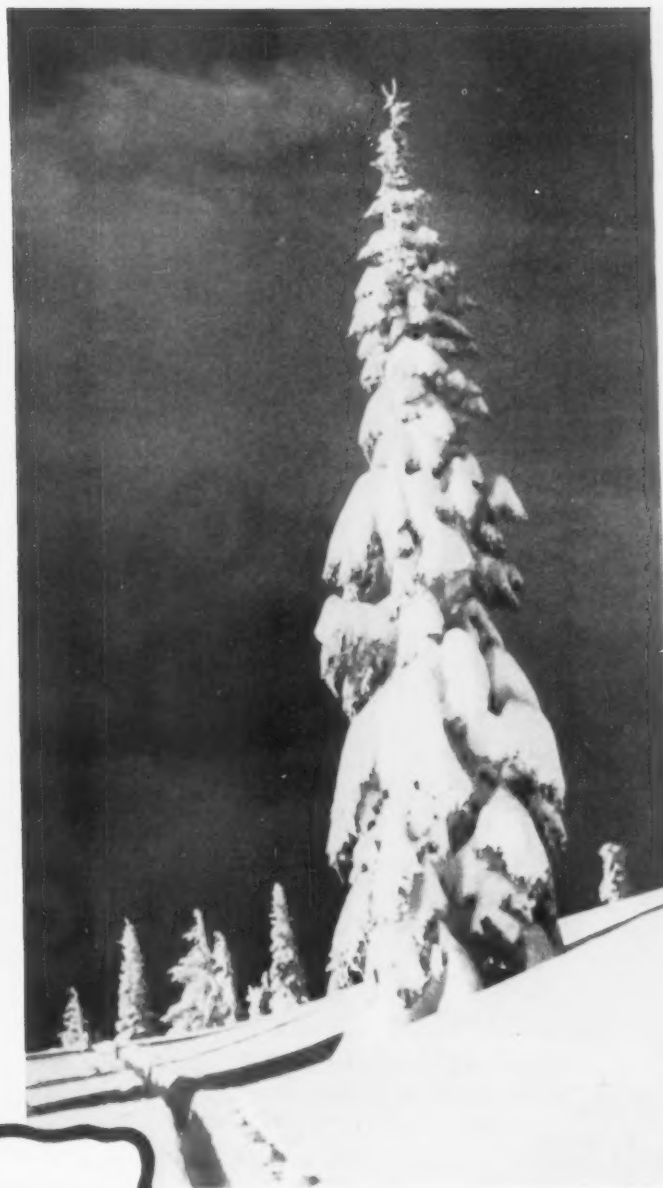
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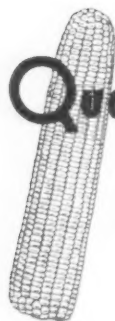
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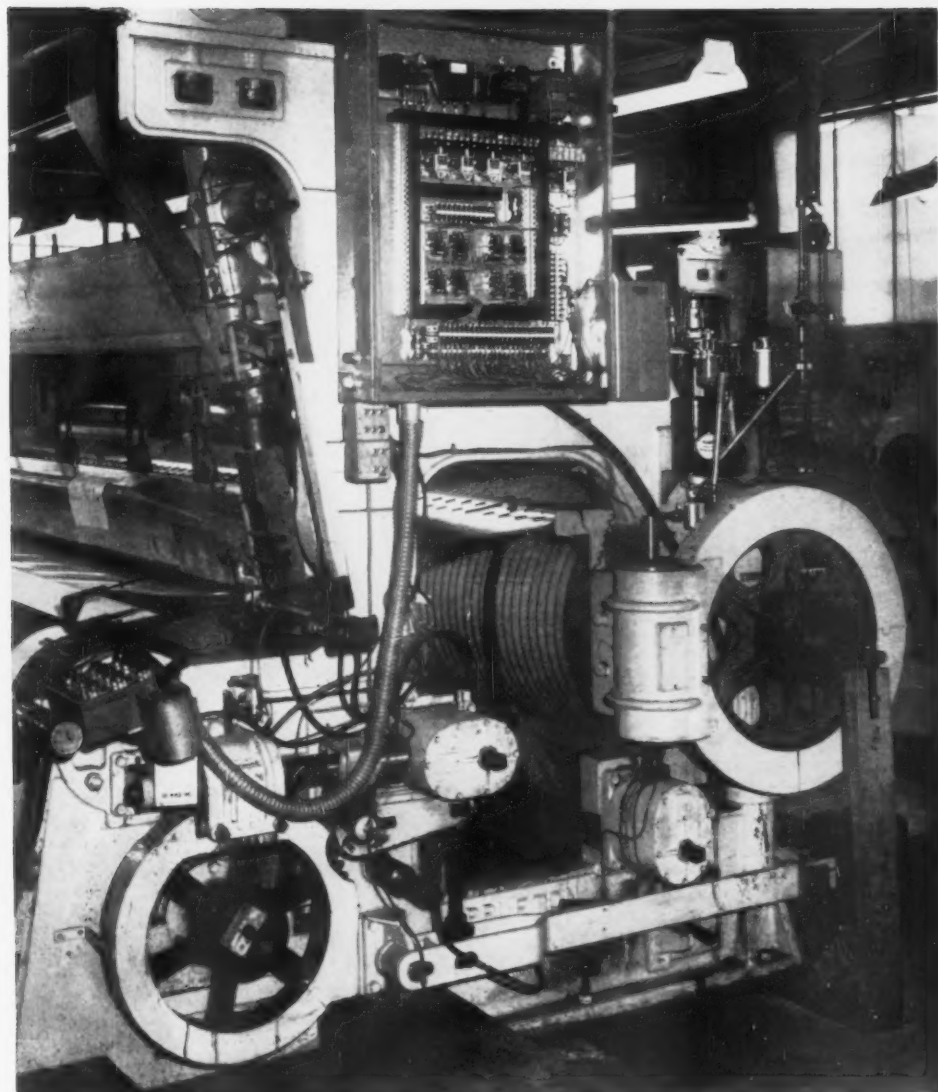
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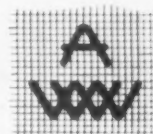
CLINTON CORN PROCESSING COMPANY

CLINTON, IOWA

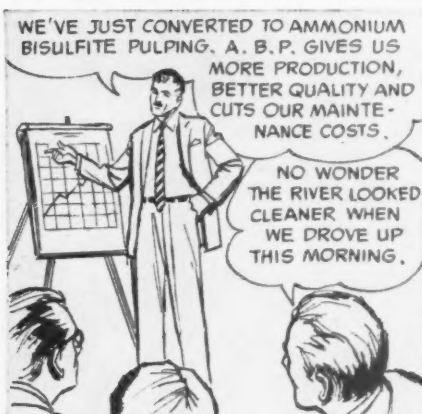


This is the result of a research and development program started over 10 years ago. It is a view of an Appleton automatic loom. After thorough testing, all of Appleton's more than 100 Fourdrinier wire weaving looms were converted to automatics. Appleton Wire Works, Inc. General Offices, Appleton, Wis. Plants at Appleton and Montgomery, Ala. International Wire Works, Menasha, Wis., an affiliated company.

APPLETON WIRES ARE GOOD WIRES



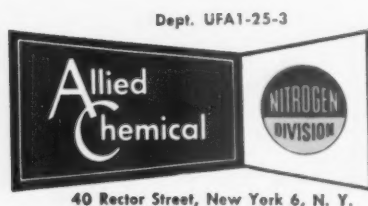
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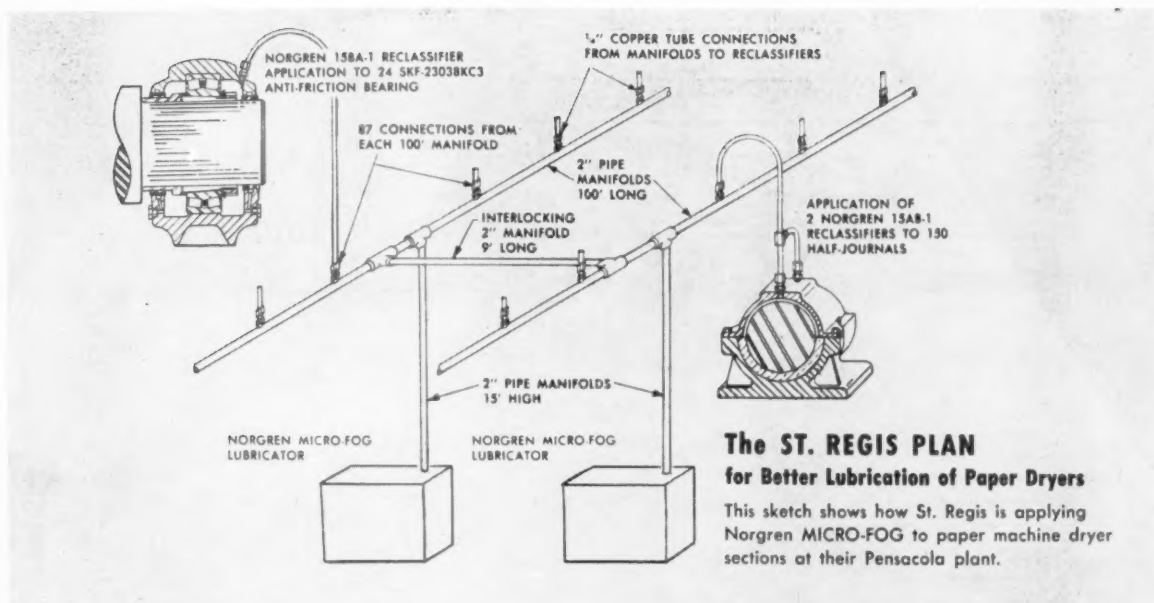
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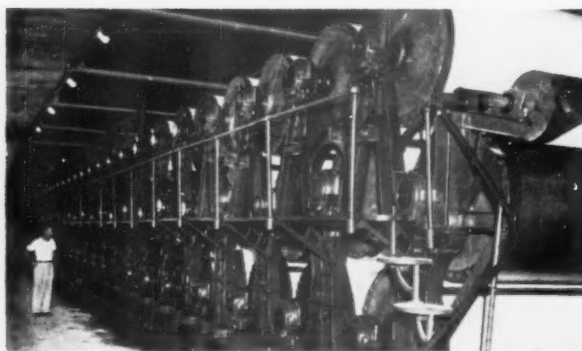


174 BEARINGS ON PAPER MACHINE LUBRICATED BY

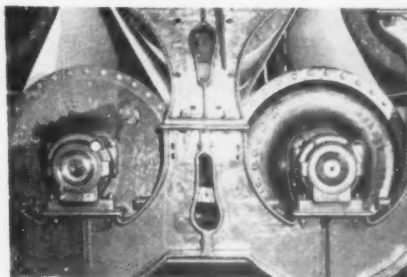
Norgren MICRO-FOG

... Results of 3 Years Tests by St. Regis Prove MICRO-FOG Best

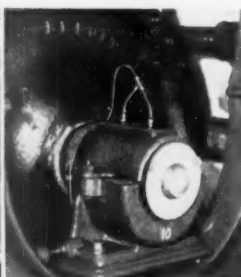
- MICRO-FOG Lubrication is by far the most thorough.
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- Less lubricant is consumed.
- Paper losses due to excessive lubrication have been ended.
- Lint and other contaminants can not enter bearings.



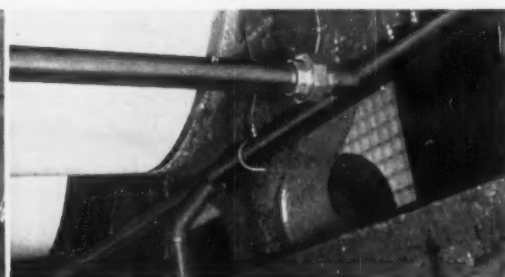
St. Regis found that Norgren MICRO-FOG Lubrication for these dryer sections provides a consistent and uniform delivery of oil to the bearings. Oil on bearings is always fresh and clean. Periodic installation of grease blocks and hand lubrication have been eliminated.



Anti-friction bearing at right shows how one MICRO-FOG distribution line serves each bearing. Note oil leakage on bearing at left where old lubrication system was used during test. Paper loss due to excessive lubrication has been ended.



MICRO-FOG enters each plain bearing through two lubrication lines, providing a continuous protective coating of fresh lubricant over the entire surface of the bearing.



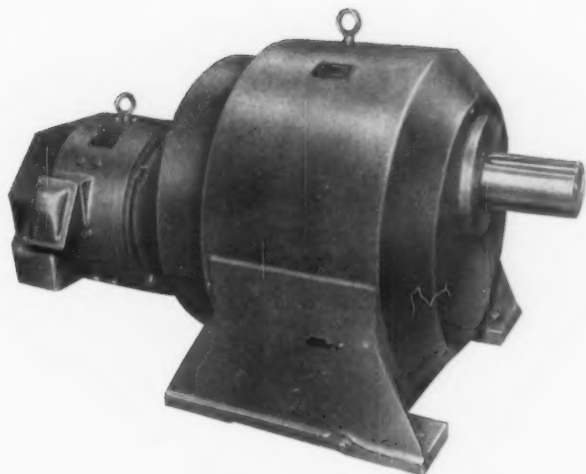
To assure continuous, uninterrupted lubrication, an interlocking manifold connects the two Norgren MICRO-FOG Systems, permitting temporary lubrication of all 174 bearings by one unit. MICRO-FOG lubrication has reduced bearing temperatures 8° to 10° F. Bearings show no sign of oil oxidation—remain bright and clean.

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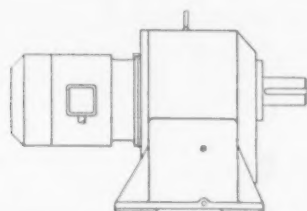
Result: substantial savings in space required. You can even mount the Type "G" without a base plate.

Helical Gearing supports larger loads with maximum power efficiency (96-98%)—assures silent operation, increased strength, longer life. Teeth are crown shaved and induction hardened for optimum performance.

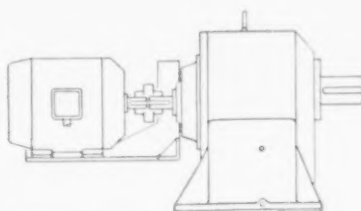
The Type "G" Gearmotor is an extension of the famous Philadelphia Gearmotor Line. It is available as a reducer, gearmotor with motor mounting bracket, or standard gearmotor with flange mounted motor. For complete information, write for Bulletin GM-57-B, Philadelphia Gear Works, Erie Ave. and G Street, Philadelphia 34, Pa.

Offices in Principal Cities • Virginia Gear & Machine Corp., Lynchburg, Va.

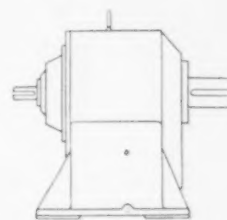
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This synthetic Webbing is **WOVEN TAPERED*** — No abrupt edge

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This Synthetic Webbing won't hold moisture—always runs dry.

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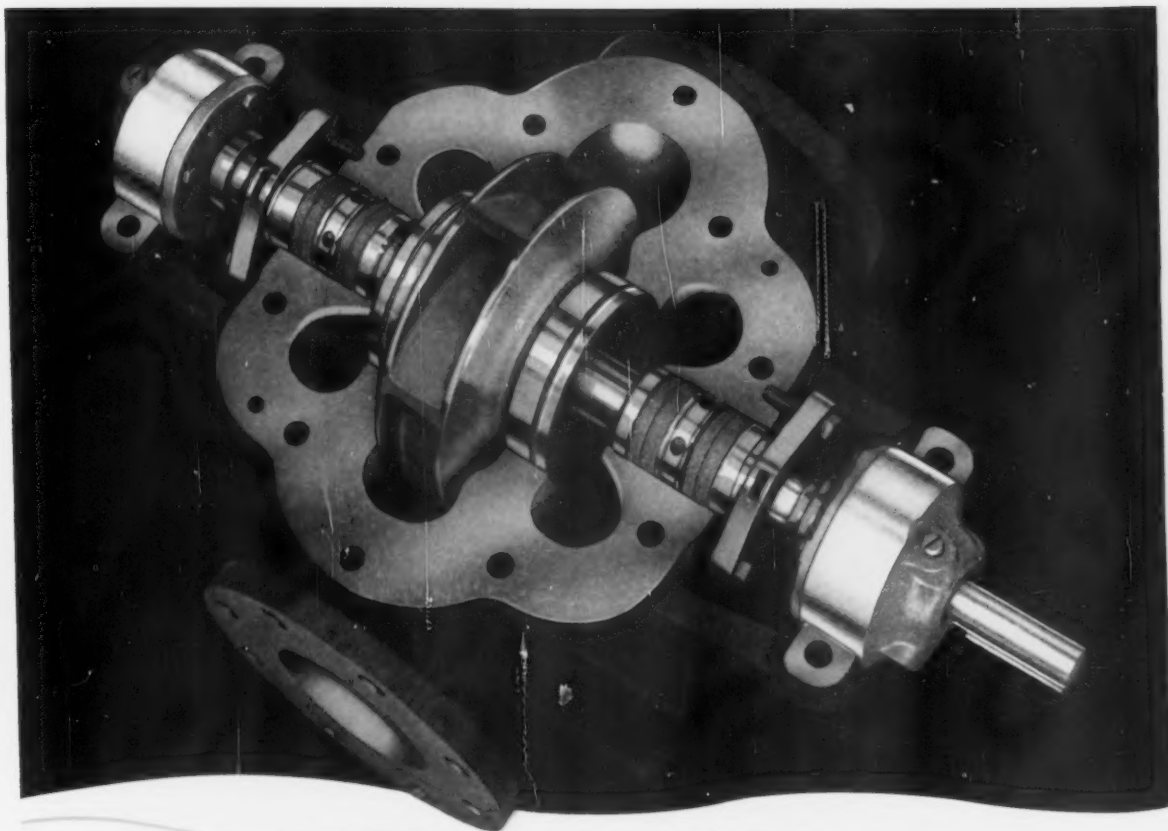
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*For immediate attention
to your dryer felt problems, write:*

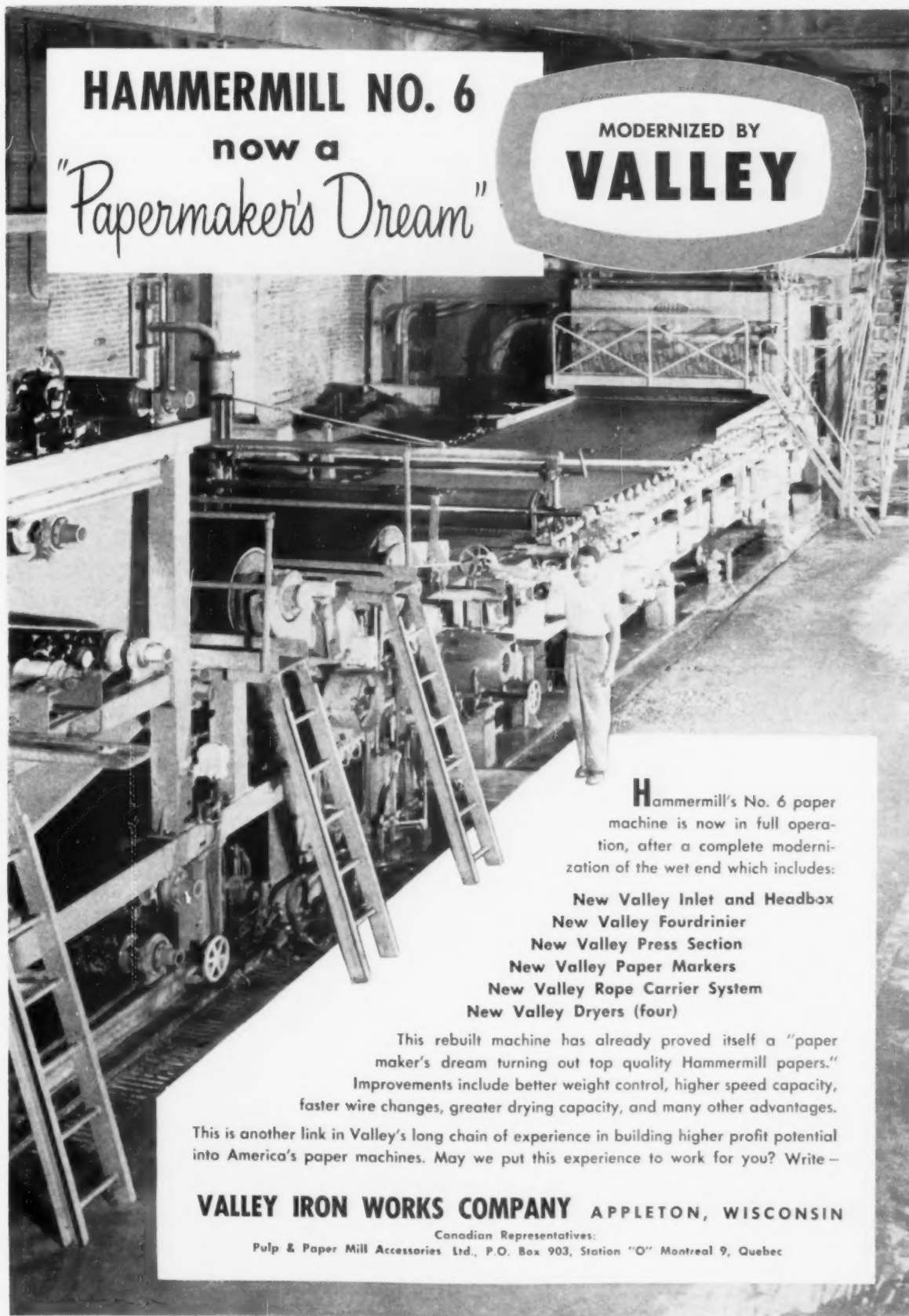
Brandon Sales, Inc.
Drawer L, Branwood Station
Greenville, South Carolina

Representatives:

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BRANDON

DRYER FELTS



HAMMERMILL NO. 6
now a
"Papermaker's Dream"

MODERNIZED BY
VALLEY

Hammermill's No. 6 paper machine is now in full operation, after a complete modernization of the wet end which includes:


- New Valley Inlet and Headbox
- New Valley Fourdrinier
- New Valley Press Section
- New Valley Paper Markers
- New Valley Rope Carrier System
- New Valley Dryers (four)


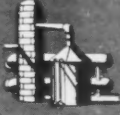







This rebuilt machine has already proved itself a "paper maker's dream turning out top quality Hammermill papers." Improvements include better weight control, higher speed capacity, faster wire changes, greater drying capacity, and many other advantages.







This is another link in Valley's long chain of experience in building higher profit potential into America's paper machines. May we put this experience to work for you? Write —

VALLEY IRON WORKS COMPANY APPLETON, WISCONSIN

Canadian Representatives:
Pulp & Paper Mill Accessories Ltd., P.O. Box 903, Station "O" Montreal 9, Quebec

Here's why  can recommend the right product for your special application immediately!

When you phone  requesting data on a specific application  of a  product or the development  of a product to meet new specifications, the Sales Office Manager in Oakland with whom you speak can contact the plant at  immediately.  He talks by private wire teletype  with the Plant Manager and the Director of Development.  An answer is given immediately.  It is relayed to you often while you are still on the phone.

's Sales Office Manager  sales representatives  and plant executives  work together as a team manning a system that is, in our opinion, uniquely outstanding in the chemical industry. Their confidence in the efficiency of this system is reflected in the enthusiastic, helpful and friendly manner in which they promptly  serve you . . . our customers. 

WEST END CHEMICAL COMPANY
DIVISION OF STAUFFER CHEMICAL COMPANY
1956 WEBSTER, OAKLAND 12, CALIF. • PLANT, WESTEND, CALIF.

SODA ASH
SALT CAKE
BORAX • HYDRATED LIME



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PAPER**

125

YEARS

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in 60 cities in the United States,
Europe, Latin America,
Africa, and Asia.

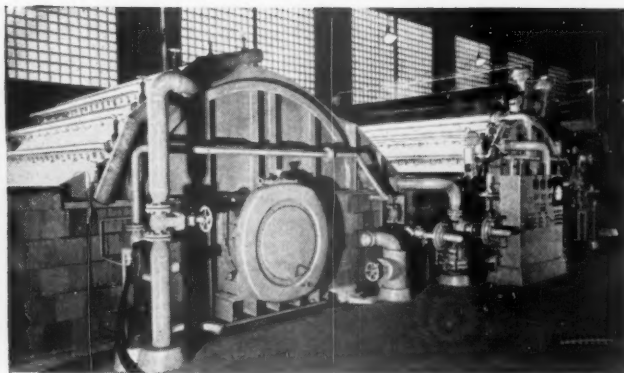


BULKLEY DUNTON
ORGANIZATION

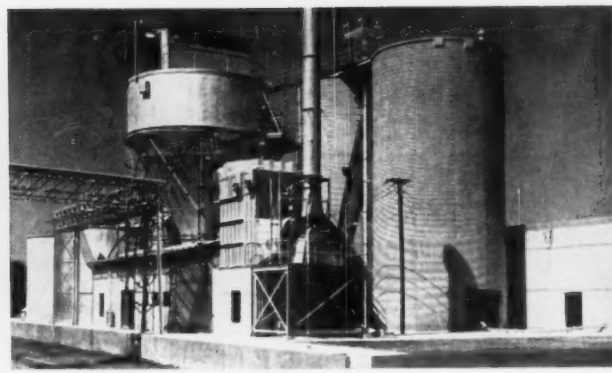
295 Madison Avenue, New York 17, N. Y.

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LTD. — LONDON • BULKLEY DUNTON, A.G., ZURICH
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DUNTON PROCESSES, INC.

In New England — CARTER RICE STORRS & BEMENT



PULP WASHING IN STAINLESS STEEL safeguards quality, keeps costs in line and assures continuous, profitable production at Puget Sound Pulp and Timber Company, Bellingham, Washington. Stainless chlorination and hypochlorite washers in the company's bleach plant provide high resistance to corrosion. Stainless resists scaling at high temperatures. Possesses high creep strength. Shrugs off abrasion. Takes stress and vibration in stride. No other common construction material matches stainless for its combination of qualities and physical properties so essential to the mechanical and chemical stages of pulp processing.

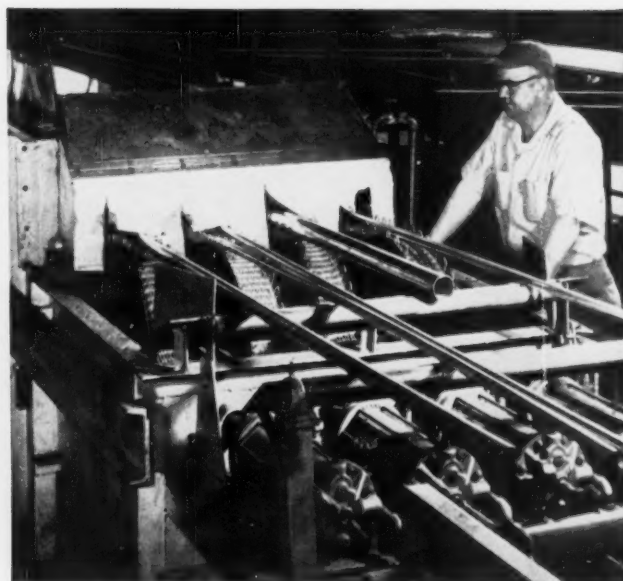


SPRAY DRYING IN STAINLESS STEEL protects the quality and purity of Kaolin paper coating clays at Thiele Kaolin Company, Sandersville, Georgia. A cake clay slurry containing 40% moisture is pumped into the stainless dryer, where it is flash dried in about a second. The resulting product comes in contact only with stainless steel so that it maintains quality and purity at the highest level. There's no danger of metallic contamination. ENDURO is inert to most chemicals and chemical compounds. It never adds unwanted elements to products. Never takes anything away. Stainless equipment is an investment in long-range savings.

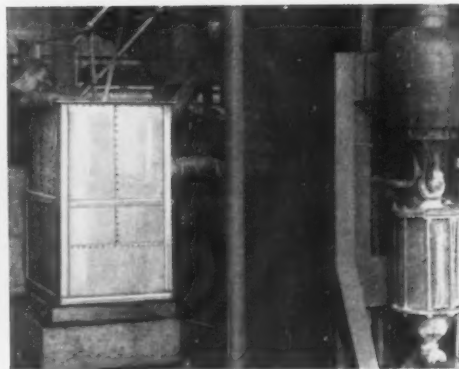
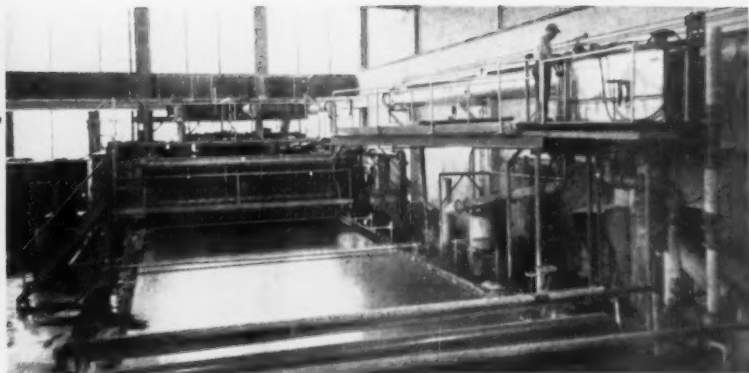
STAINLESS STEEL—Pulp and



PAPER MILL FINDS BARGAIN IN CORROSION-RESISTANT CONDUIT. Acid fumes from Charmin Paper Products Company's sulfite digesters combined with moisture to corrode standard heavy-wall conduit so badly it had to be renewed every six months. Then the conduit was replaced with Republic ELECTRUNIT "Dekor" Coated Electrical Metallic Tubing. In service for nearly seven years now, it has outlasted standard conduit ten to one. A tough coating of polyethylene encases lightweight, strong ELECTRUNIT® E.M.T. in an end-to-end armor that is impervious to excessive moisture and corrosive fumes. It can be cut to length and bent to fit as easily as standard E.M.T. conduit. Also available in hot galvanized rigid steel conduit. Joints are protected by polyethylene or vinyl-backed electrical tapes. Contact your local electrical distributor for more details. Or mail us the coupon.



BRIGHT ANNEALED STAINLESS STEEL TUBING. Republic Steel and Tubes Division's new, continuous bright annealing furnace now makes it possible for you to obtain tubing with a dense, smooth, lustrous finish. The furnace produces a tube with a hard, high-quality finish in sizes from 1/4" through 4" O.D. Bright annealed tubes are produced from flat rolled Republic ENDURO Stainless Steel, cold formed into a tubular shape, and joined by the inert arc welding process. Every foot of tubing has uniform wall thickness, is perfectly concentric, meets every requirement called for by ASTM and ASME. Mail the coupon for more information on bright annealed tubes.



CONVERSION TO STAINLESS STEEL PAYS OFF in cleanliness, uniform quality, minimum maintenance and reduced costs at Allied Paper Corporation of Kalamazoo, Michigan. Recently the company started a conversion program in its three pulp-blending and paper mills. Older equipment, made from less versatile materials, is being replaced with stainless. Allied is already enjoying a 50% reduction in weekly clean-up and maintenance time. The reason? Stainless is so easy to

clean and keep clean. A simple flushing with water or diluted acid solution brings stainless back to sparkling cleanliness. Danger of stock loss due to inclusion of the oxides of corrosion or other contaminating matter is eliminated. Another reason is the fact that stainless steel is solid. There's no applied surface to crack, chip, flake or peel. Its smooth, hard sanitary surface offers little foothold for contaminants. Rarely needs refinishing or restoring.

Paper Processors' Biggest Bargain

No other commercially available material offers so many advantages. Select stainless for a specific purpose, such as protection of product purity or minimum maintenance, and automatically get all of its "bonus benefits."

Pulp and paper processors discussed above selected equipment fabricated from Republic ENDURO® Stainless Steel for various reasons. All are benefiting from faster production, elimi-

nation of spoilage, lower costs, ease of cleaning and higher product quality. You could be enjoying these same advantages. Your equipment supplier has all the facts. Or send us the coupon for more information.

The advantages of stainless steel are brought to you by Republic in behalf of the stainless steel process equipment manufacturers and the independent steel distributors (local Steel Service Centers) who supply them.

REPUBLIC STEEL



*World's Widest Range
of Standard Steels and
Steel Products*

REPUBLIC STEEL CORPORATION
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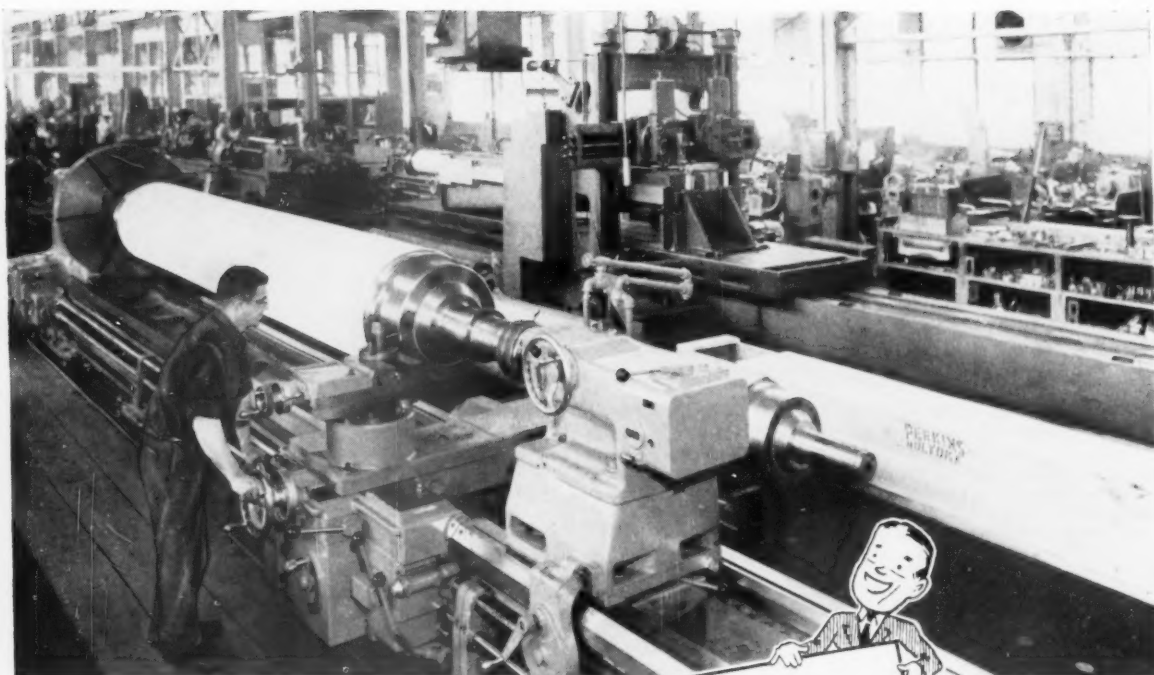
- ☐ ENDURO Stainless Steel ☐ Bright Annealed Tubing
☐ ELECTRUNITE "Dekoron-Coated" E.M.T.

Name _____ Title _____

Company _____

Address _____

City _____ Zone _____ State _____



PERKINS

At Your Service

Making Perkins quality calender rolls requires highly skilled operators as well as the most modern equipment. Here is Joe Yacovone finishing a 24" diameter 175" face roll, one of the last of the many steps taken all the way from initial engineering to the finished product. Joe knows that Perkins rolls must be machined exactly and he knows how to do it.

We are proud of Joe and many others like him in our organization.

Perkins' reputation in the manufacture of calender rolls goes back to 1873. This means that when you specify Perkins, you enlist experience of 85 years, one of the main reasons for Perkins' contribution to the success of quality paper making.

B. F. PERKINS & SON, INC.
HOLYOKE, MASSACHUSETTS

Southern Sales Offices — 1609 Liberty Life Bldg. — Charlotte, North Carolina

a new source for

BLEACHED HARDWOOD KRAFT

BLEACHED SOFTWOOD KRAFT

to meet the most exacting standards

a strictly market pulp mill...
ideally situated... combining
the latest in equipment and
advanced manufacturing techniques
to supply you with market pulps



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of uniformly high quality,
brightness and workability...
manufactured to fit your own
particular requirements. Specify
Thurso Kraft pulps. Thurso Pulp &
Paper Co., Ltd., Thurso, Canada

**EXCLUSIVE
AGENTS**

Perkins-Goodwin Co.

Established 1846 / Pulp and Paper Marketing—Management

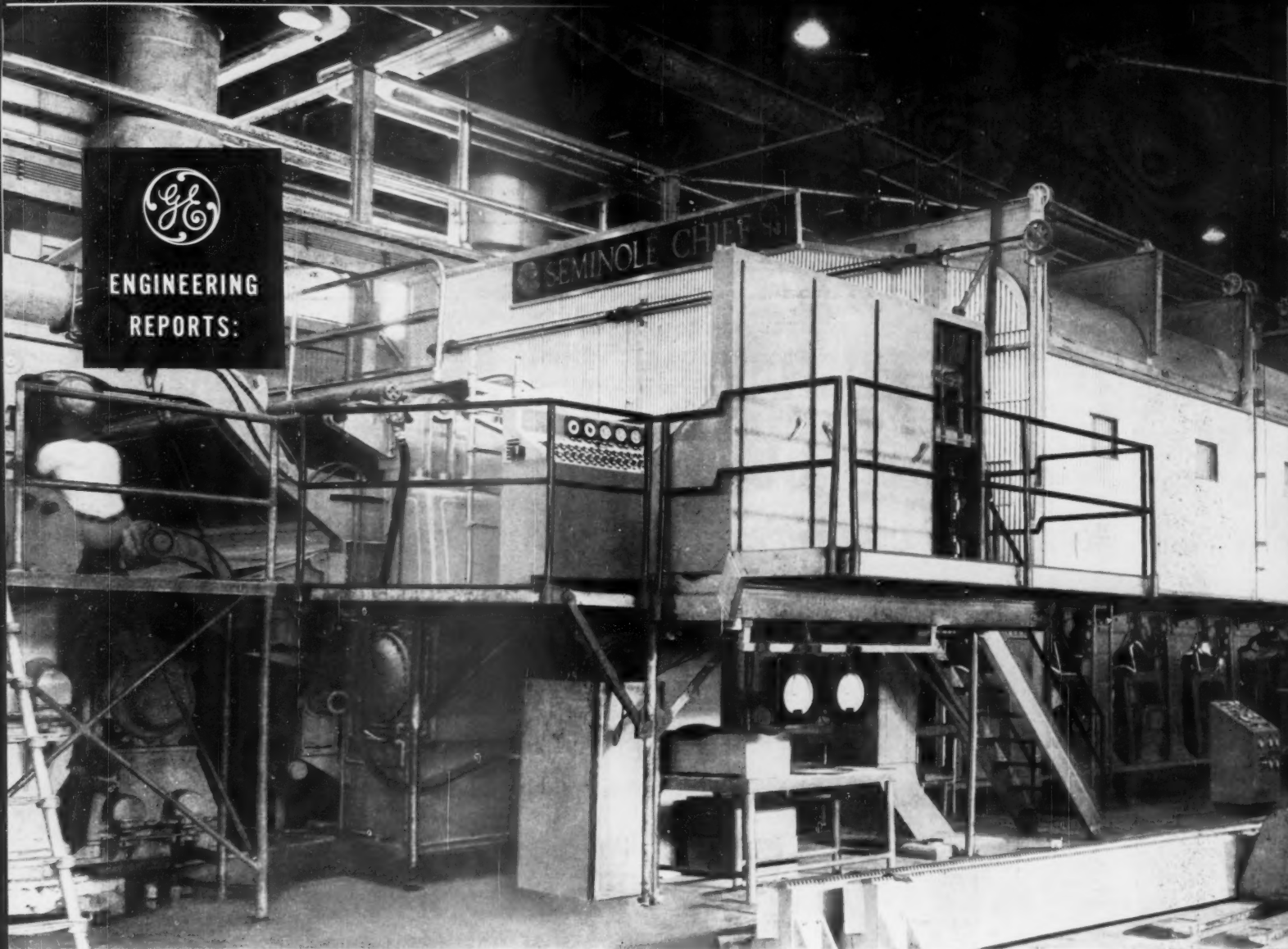
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ENGINEERING
REPORTS:



GENERAL ELECTRIC HELPER DRIVE SYSTEM POWERS . . .

World's Biggest Kraft Board

New "Seminole Chief" adds 1000 ton-per-day
capacity to St. Regis' Jacksonville, Fla., mill.

The huge new paper machine with a rated capacity of 1000 tons per day is now operating at the St. Regis Paper Company's Jacksonville, Florida, mill. Part of an expansion begun two years ago, the newest and largest kraft board machine in the world manufactures paper-board used primarily to make corrugated containers. Known as the "Seminole Chief," the new Fourdrinier machine built by Beloit Iron Works is designed for speeds up to 2500 feet per minute.

ELECTRICAL EQUIPMENT furnished by General Electric for the mill expansion includes the electrical helper drive and the world's largest regenerative tension winder drive for the machine rewinder. Featuring static regulators self-contained in the control line-up, the helper drive supplies a total of 990 horsepower distributed over 12 motors applied to wet and dry end sections. Accurate control of machine operation is achieved by regulation of current, voltage or speed, based on individual section requirements. The factory-wired static regulators allow a savings in installation time and space, as well as a reduction in rotating equipment maintenance.

THE WINDER DRIVE can accelerate or decelerate in approximately $\frac{1}{2}$ minute, can stop in emergencies in 15 seconds. A 500-hp direct-



PLANNING ELECTRICAL EQUIPMENT requirements for mill expansion are (L-R): G.E. Shaad and J. B. Peebles, Jr., both General Electric Co.; and L. C. Crowder, Chief Engr., O. A. Smith, Staff Engr., and J. A. McDermott, Gen. Mgr. of Pulp and Paper Production, all from St. Regis Paper Co.



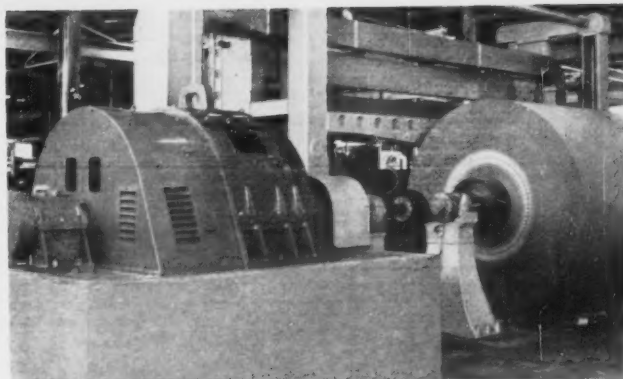
Machine

coupled braking generator operates over a mill roll build-down range of 4:1, controls sheet tension to a pre-set value from $2\frac{1}{2}$ to $11\frac{1}{2}$ pounds per inch of width. Two 400-hp motors power windup stand at speeds up to 6500 feet per minute. Operator's console permits complete control of rewinding operation, requires minimum of operator attention.

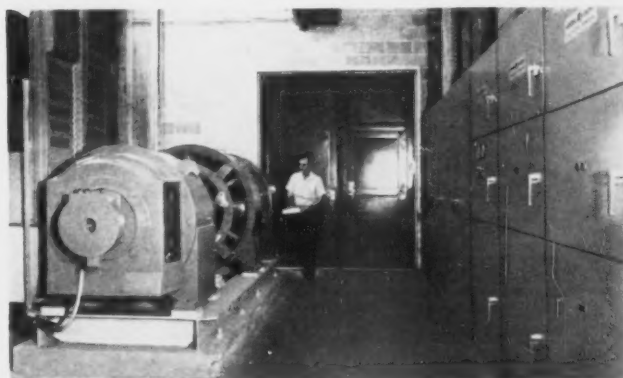
CO-ORDINATION of equipment into a flexible, easy-to-maintain electrical system—designed to meet the special needs of this mill—was the result of close cooperation between St. Regis and General Electric engineers. Whatever your drive requirements, G-E engineering services are ready to help design, equip, and install a co-ordinated electrical system from one-line diagram to on-time startup. Simply contact your nearest General Electric Apparatus Sales Office for more information on paper mill drive systems. Or write for bulletin GEA-6508, Drive Systems for Pulp and Paper Mills, General Electric Company, Section 655-21A, Schenectady 5, New York.

Engineered Electrical Systems for the Paper Industry

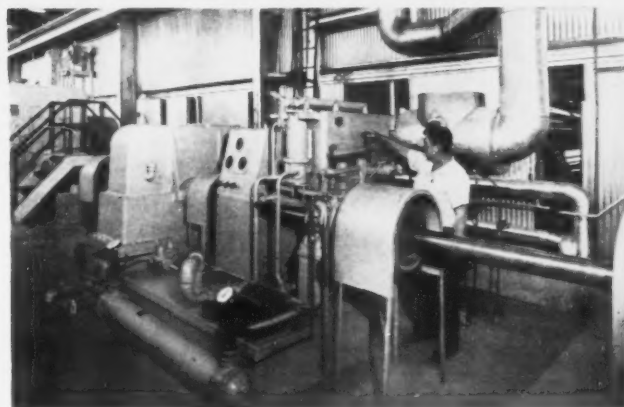
GENERAL  **ELECTRIC**



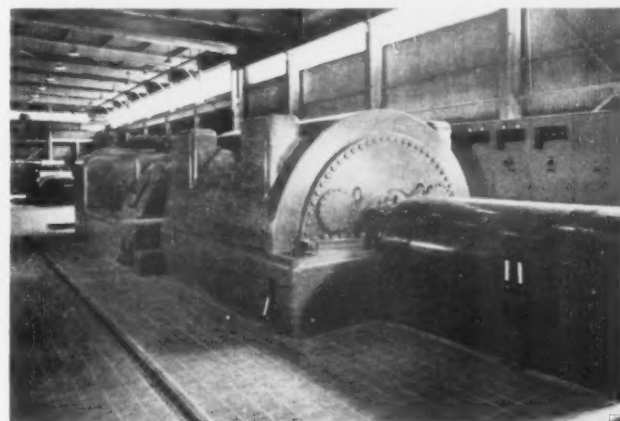
WORLD'S LARGEST regenerative tension winder drive has 500-hp direct-coupled braking generator, two 400-hp windup motors to power winder up to 6500 feet per minute.



MAIN M-G SET for winder drive is rated 400 KW. Installation was simplified by use of high capacity busway to interconnect elements of winder drive.



MECHANICAL-DRIVE TURBINE is rated 3600 hp, and provides speed regulation of .1% for mechanical line shaft drive.



30,000 KW TURBINE-GENERATOR increases mill's total generating capacity to 53,000 KVA, is tied to present distribution system permitting shift in steam or load between existing and new equipment.



TITANOX*... it's in the bag

While our young baker has the spirit, we don't guarantee the results. But we can guarantee that nothing surpasses TITANOX titanium dioxide white pigments for imparting the bright whiteness to paper that makes the flour bag a shining promise of purity within.

Not only for paper for white bags but for any type of paper that needs whitening, brightening and opacifying, TITANOX is No. 1 choice in white pigments. Titanium Pigment Corporation, 111 Broadway, New York 6, N. Y. Offices in principal cities.

TITANIUM PIGMENT CORPORATION
Subsidiary of NATIONAL LEAD COMPANY

*TITANOX is a registered trade mark for the full line of titanium pigments offered by Titanium Pigment Corporation.

5208



Buckeye has perfect control from pulpwood to wood pulp

From forest to finished product, every step in the manufacture of Buckeye Pulp is engineered and controlled to the Nth degree. Our 800,000 acre tree farm in Florida is carefully supervised, harvested and replanted with superior seedlings. At the huge Buckeye plant, custom-designed equipment and advanced processes convert selected logs into wood pulp to meet the most exacting standards of quality and uniformity. Every stage of production is constantly checked and double-checked by a rigid system of plant and laboratory controls.

Visitors to our Foley plant are amazed at all that is done to make sure of complete customer satisfaction. It can pay you to discuss your requirements for bleached or semi-bleached kraft with us. Address inquiries to:

BUCKEYE CELLULOSE CORPORATION, Memphis 8, Tenn.

Wood Pulp Plant at Foley, Florida

Cotton Linters Pulp Plant

at Memphis, Tennessee

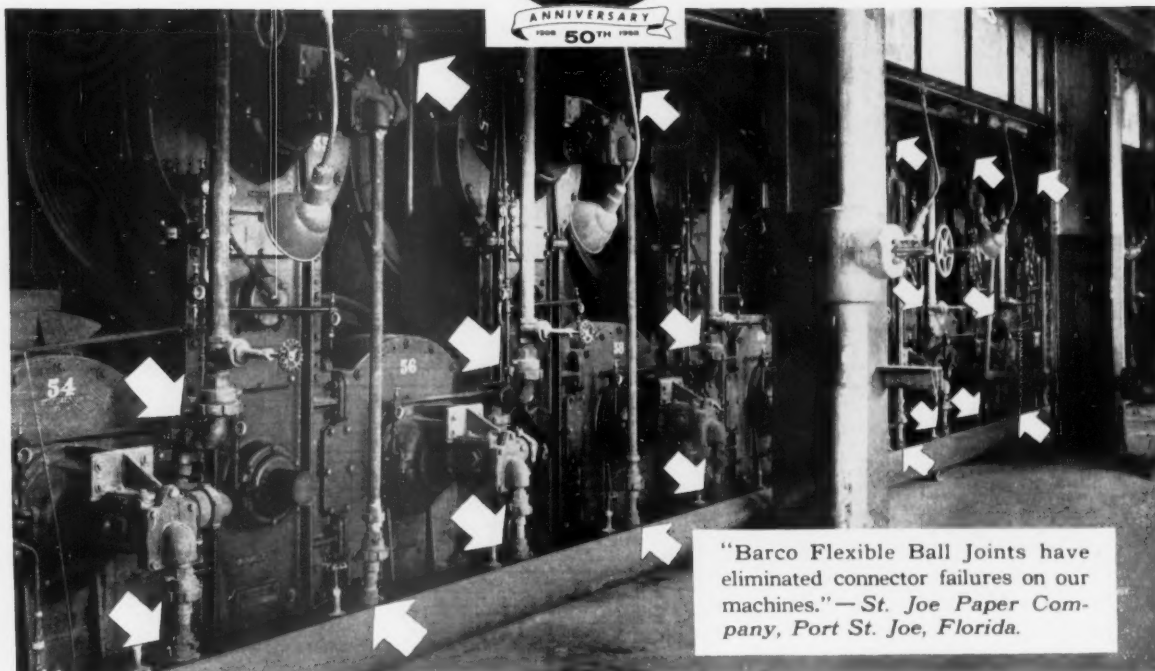
BUCKEYE PULP

Bleached and Semi-Bleached Kraft
from Southern Pine

FLEXIBLE



BALL JOINTS



The Solution for "Connector Failures" On New, High Pressure Paper Machines

IT is costly maintenance when you have to shut down a big paper machine to repair leaking steam and condensate lines connecting dryers with headers. This is why numerous mills and leading machine builders are now using Barco Flexible Ball Joints in assemblies with metal pipe as illustrated here.

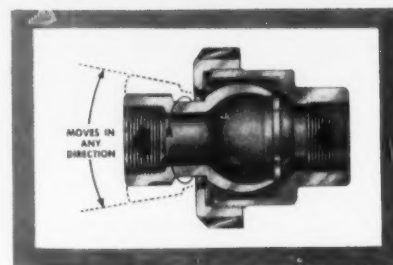
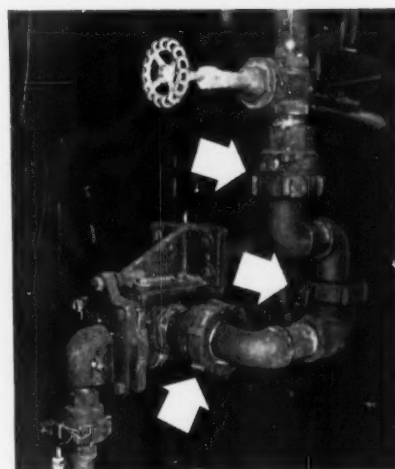
At St. Joe Paper Company, Port St. Joe, Florida, Barco Flexible Ball Joints were first installed in 1951 to overcome connector failures in steam lines from headers to dryers on their No. 1 paper machine. They were so pleased with the results that in 1952 they equipped their No. 2 machine completely, using two joints to each of 102 dryers. But that isn't all. Since then they have installed 217 additional joints of various sizes in headers and other piping. St. Joe maintenance engineers say, "*Barco Flexible Ball Joints have eliminated connector failures on our machines and we have had practically no maintenance whatsoever.*"

Safety is also an important factor. With Barco joints and metal pipe, there is no danger of connectors bursting. Where steam pressures on machines are 75 psi, or higher, virtually all new mills now use "THE BARCO BALL JOINT METHOD," with two joints per connection.



← EVERY ENGINEER will want a copy of this NEW BULLETIN

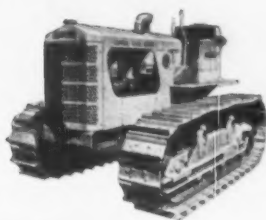
New Bulletin No. 31 contains interesting diagrams showing how to solve many common pipe expansion problems **EASILY, ECONOMICALLY**. Ask for a copy; see your nearest Barco representative or write: BARCO MANUFACTURING CO., 573C Hough St., Barrington, Ill. In Canada: The Holden Co., Ltd., Montreal.



OLIVER



"WET FEET" WON'T SLOW LOGGING PROFITS WITH OLIVER CRAWLERS



THE OLIVER CORPORATION

Industrial Division, 19300 Euclid Ave., Cleveland 17, Ohio

a complete line of industrial wheel and crawler tractors and matched allied equipment

Pulp man F. B. Hale of Lake Wales, Florida, makes it his business to walk right into swampy areas such as this to get his logs. With two six-man crews and two Oliver crawler tractors he cuts pine and hardwoods, snakes out the logs, cuts them into pulpwood lengths and loads nine freight cars (162 cords) a week.

His two sizes of Oliver tractors (60 h.p. and 28 h.p.) are the perfect combination for versatility and mobility under all conditions. And Oliver's dependable performance protects his profits even in marshy ground where much of his work is done. His maintenance costs for both Olivers for a full 12-month period: \$18.00!

Compare the performance—and the costs—and you'll buy Oliver. Ask your dependable Oliver distributor for the facts. Or write for literature.

Oliver OC-12 crawler—60 h.p. diesel tractor. POWER-TURN steering means full power on both tracks at all times, even on the sharpest turns. Speeds range from 1.60 to 5.27 m.p.h. The OC-12 gives you the lowest operating costs of any tractor of this size.

Only with Link-Belt Speeder **Full-Function** design . . .

all these features in one yard-crane



STANDARD FEATURES

- Full power hydraulic controls
- Hydraulic power steering
- Independent rapid boomhoist
- Fully interchangeable, self adjusting clutches
- Two-speed travel in either direction through gear reduction

OPTIONAL FEATURES

- Reversing clutches for one drum
- Reversing clutches for both main drums
- Boom lowering clutch
- Third drum without restricting any other function
- Independent swing and travel without restricting any other function
- Torque converters

OTHER 1-YD. MACHINES*

LS-9B	Rig A	Rig B	Rig C	Rig D
X				
X	X	X		X
X				
X	X			
X	X	X		X
X				
X			X	X
X			X	
X				
X		X		X

*Ask your Link-Belt Speeder distributor for the facts behind this comparison.

*Get a profit bonus with these standard features . . .
tailor the machine to the job with these optional features*

Exclusive with Link-Belt Speeder — revolutionary **Full-Function** design provides a separate power train for each machine function.

That's why you can have and use all these 11 major features on the same yard-crane—without restricting other operations.

Practically double power train life

And that's why **Full-Function** design spreads wear over more clutches, shafts, gears and bearings. Only

the power trains in use are under load!

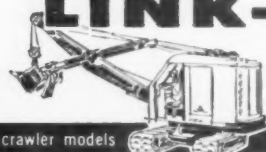
But this is only one of the many Link-Belt Speeder advantages. You also get—

- **Greater usable horsepower**
- **Speed-o-Matic—proven power hydraulic controls**
- **Bonus crane capacity working with long booms at extended radii**

For complete details, contact your distributor. Or write Link-Belt Speeder Corporation, Dept. PP-258, Cedar Rapids, Iowa, for Book No. 2553.

14-770-C

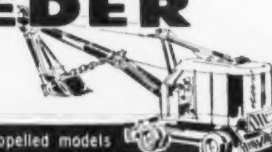
LINK-BELT SPEEDER



18 crawler models



6 truck-cranes



4 self-propelled models

It's time to compare . . . with a Link-Belt Speeder

A major step forward in forest site preparation

In cooperation with the Brunswick Pulp & Paper Co., Caterpillar Tractor Co. recently conducted a three months' study of different forest site preparation methods near Brunswick, Ga. Some 700 acres in three areas were cleared and planted in trees. Six track-type Caterpillar Diesel machines, ranging in horsepower from 63 to 320, were used. Attachments included Rome offset disc harrows...Fleco rakes...stumpers and cab guards...Hyster stump driver and winch...anchor-type chain. Each tractor and attachments worked the length of time needed to provide a "dollars and cents" yardstick of production results. Some operational pictures are shown here. The results have been compiled on the following subjects: Stump Treatment... Stump Clearing... Tree Cutting... Chaining... Raking

and Windrowing...Harrowing. For information, write Caterpillar Tractor Co. or call your nearby Caterpillar Dealer.

Caterpillar Tractor Co., Peoria, Illinois, U.S.A.

CATERPILLAR*

*Caterpillar, Cat and Traxcavator are Registered Trademarks of Caterpillar Tractor Co.

**HEAVY-DUTY
WOODS EQUIPMENT
FOR THE HARD WORK**



BEFORE: One of three areas selected for the project. In general, ground conditions ranged from sandy to marshy. In one area, pine and palmetto were predominant; in another, hammock land with mixed pine and hardwoods; and in the third, upland hardwood, mixed pine, palmetto and brush. Despite some rain, tractor footing was good.

RAKED AND WINDROWED: Typical area after raking and windrowing. Machines used: Caterpillar D9, D8 and D7 Tractors and No. 977 Traxcavator* with rakes. The more dense areas were cleared by the D9, the less dense by the other machines. Areas consisted of live oaks and mixed hardwoods with an understory of palmetto, gall berry, myrtles and vines.



SHEARING AND STUMPING: A CAT* D8 Tractor with a Rome K.G. blade at work in dry sandy soil, cleared except for standing live oaks ranging in diameter from 18" to 81". Trees were hit by stinger at height of 3' to 4' above ground level, sliced and pushed over. Stump tops were sheared at ground level by stinger and cutting edge in one or several passes.

HARROWING: A D8 with heavy-duty offset harrow on the job after an area of upland hardwood, mixed pine and heavy brush had been chained, raked and stumps cut at ground level. The number of passes—one or two—on an operation like this is up to the individual forest owner. After preparation, areas were planted by a D2 and D4 with tree planters.



New **PAYLOGGER** line



Speeds handling operations

All of the features of the "PAYLOADER" — the first and the foremost four-wheel-drive tractor-shovel line — are now available in the new "PAYLOGGER" line.

Here is a line of four-wheel-drive, rubber-tired machines equipped with special DROTT grapples for loading and decking logs and pulpwood, yard and mill handling of lumber, slash or brush and scores of other jobs.

The patented DROTT skid grapples, for many years the leading equipment of its kind and previously available only on I-H crawler tractors, have been engineered in conjunction with Hough rubber-tired units. This new "PAYLOGGER"

line gives you the best performing combination on wheels.

The "PAYLOGGER" gives you more lifting capacity through a powerful hydraulic system and rugged boom arms; tremendous pry-out force of boom-arm pads and tip-back action breaks logs out of frozen piles; more carrying capacity because of a longer wheelbase; greater stability because the load is carried low and close, and cushioned by hydraulic shock-absorber. As a result, you can pick-up heavier loads and carry them faster, with greater safety — all by the one-man crew in the driver's seat.

for PULPWOOD, LOGS, LUMBER



in woods and mill

The "PAYLOGGER" is built throughout for rugged service: Power-transfer differentials assure better traction in slippery underfooting or when climbing grades; extra heavy planetary axles are designed to absorb a tremendous thrust; boom arms are of heavy box section construction and many other superior features assure steady, continuous performance.

Lifting capacities of the "PAYLOGGER" line range from 9,000 lbs. to 17,500 lbs. — carry capacities from 6,800 lbs. to 13,000 lbs. To learn what this great, new combination can do for you, contact your "PAYLOGGER" Distributor today.

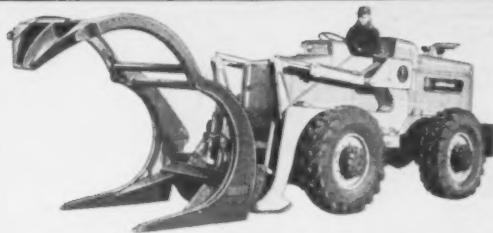


PAYLOGGER

MANUFACTURED BY
THE FRANK G. HOUGH CO. LIBERTYVILLE, ILL.
SUBSIDIARY - INTERNATIONAL HARVESTER COMPANY



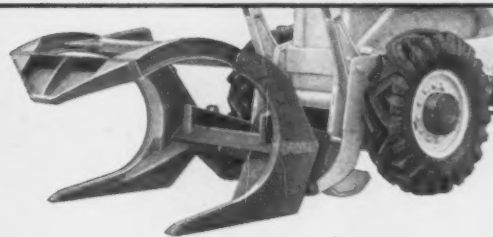
DROTT grapples for every job...



Pulpwood Skid-Grapple for all "PAYLOGGER" models. Prong spacings 28" and 60" for various lengths of pulpwood. Four prong grapple available for brush, stumps and debris.



Log Skid-Grapple for the big LO "PAYLOGGER". Top grabarms are individually actuated by hydraulic cylinders. Prong spacing is 72".



Low Profile Grapple for logs or pulpwood on all models. One-piece grabarm closes tightly to hold any load — even a single 16" log.



Combination Log and Lumber Grapple is ideal in sawmill yard to charge mill, store and load finished products. Square bed prong spacing is 60".

THE FRANK G. HOUGH CO.

891 SUNNYSIDE AVE., LIBERTYVILLE, ILL.

Send more information on "PAYLOGGER" machines with DROTT patented grapples to:

NAME

TITLE

COMPANY

STREET

CITY STATE

I-D-1



THIS Direct Drive Saw Can Take It

HOMELITE

stands up under the grind!

Here's the world's lightest, most powerful direct drive chain saw — and it's designed for production cutting! It's precision built. It's a glutton for punishment. It has the power to do more cutting in less time and with less maintenance!

With 6 full horsepower packed into only 19 pounds, the Homelite EZ-6 has all the features the professional woodsman needs; features like high-compression, short-stroke design to cut wasteful friction, increase engine life, reduce gas consumption... new, revolutionary intake valve to increase engine power, assure smooth performance... positive-action fuel pump and diaphragm carburetor to give full power in any position.

Additional EZ-6 features include automatic governor... automatic clutch... moisture-proof and dust-proof ignition... needle bearings on connecting rod... ball bearings on crank shaft. *The EZ-6 is the direct drive chain saw "built to take it."*

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6-22 most versatile, all-purpose gear drive chain saw available. Has straight blades, plunge-cut bow, brush cutting and clearing attachments. 6 horsepower, 22 pounds. Gives you everything you want for dependable, year-round performance.



4-20 rugged gear drive chain saw gives you consistent, dependable performance in a wide range of cutting jobs. 4 horsepower, 20 pounds, cuts trees up to 4 feet in diameter.



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7-29 most powerful one-man chain saw you can own. 7 horsepower, 29 pounds. Powerful enough to bring down any tree in a stand. Falls trees up to 10 feet in diameter.



Cut cost per cord



LORAIN "107" TRUCK CRANE speeds truck loading in woods

V. Douglas Reed, who operates out of Hampden, Maine, has mounted a 7-ton TC-107 Lorain turntable on a 6" x 6" carrier "that is proving out very well as a woods' crane."

Mr. Douglas reports he is "very much satisfied" with the Lorain on this difficult assignment, which means traveling rough mountain logging roads to load out trucks at many scattered locations each day. His "107" is equipped with a 30-ft. boom and a wood grapple.

The ability of the rubber-mounted Lorain-107 to go anywhere a truck can go—deep into the woods, or along a highway—accounts for part of the reason this machine cuts costs per cord of harvested pulpwood. Whether mounted on a commercial truck chassis or a Lorain Moto-Crane carrier, it gets to the job fast and around the job fast. And the rugged "big machine" features, listed here, make the Lorain-107 a real woods' tool:

- Welded, box-type turntable bed
- Heavy, heat-treated, adjustable hook rollers
- Hydraulic clutches—all identical and interchangeable
- Machine-cut spur gears
- Generous use of anti-friction bearings
- Hydraulic boom hoist clutch and brake
- Precision boom lowering device
- Heavy-duty turntable lock
- Lighter, stronger, square-tubular-chord boom available
- Simple, easy-to-get-at design

Ask your Thew-Lorain Distributor for the complete "107" story. This Lorain offers additional ways to "cut cost per cord."

THE THEW SHOVEL CO., LORAIN, OHIO

**THEW
LORAIN®**



READY FOR PINE SEEDLINGS—but leased for growing watermelons—this Florida tract is part of 15,000 acres Rayonier prepared in 1957.

What Rayonier has learned about

Helping the Land Grow Pine Trees

● On a plantation near Trenton, Fla., watermelons are running interference for pine trees.

Hulking green melons are growing where pine seedlings will be getting their start in life this time next year.

This is a switch—woodpulp producer leasing its timberlands to farmers—but that's exactly what Rayonier Incorporated is doing. And if you would call this madness, there is certainly method in it.

The lease arrangement is just part of Rayonier's sprawling investment in site preparation. Begun as an experiment in 1953, site prep is now a permanent part of the company's land management program. By the end of 1958, this company will have close to 30,000 acres clear cut, prepared and planted in seedlings from superior trees.

The watermelon gambit is just one of many interesting facts Rayonier has learned about site prep in these five years. By leasing lands to watermelon farmers, Rayonier accomplishes two ends: The leased lands, which have been single cut, are given extra cultivations by the farmers, putting these fields in better shape than even two-

This industry is watching experiments in site preparation, clear-cutting and planting and other efforts to increase the yield per acre of our forests. Five years ago, Rayonier Incorporated started experiments in this field—clear-cutting lands, cultivating them with plow and harrow, planting whole areas in young seedlings. No longer an experiment, the company now has a full-scale program going, will clear 15,000 acres and plant them this year, another 10,000 next year. In this special report, **PULP & PAPER** tells (1) why Rayonier decided to go into site preparation on such a grand scale; (2) some things it has learned about the cost of such an investment; (3) how it has learned to save money in operations; and (4) some mysteries it still must solve in its plan to give nature a boost.

pass site preparation would have given them; the farmers pay about \$4 an acre to lease this land, just about half what the preparation cost initially. Since the watermelon has a disease which will remain in the soil up to ten years, the farmers are glad to get a one year contract for the "new ground."

Result: Rayonier gets top grade preparation on these particular lands for half the cost of single-pass preparation; the local farmers are happy

because it delays the use of their own lands.

This, of course, holds true only in those areas where watermelons are grown, but it illustrates what a little ingenuity can do in the field of site cultivation.

A Matter of Investment . . .

"Site preparation is simply a good investment," said Ernest Davis, operating manager of Rayonier's Southeast timber division. "The initial cost may

be high but it's worth every penny. If we increase the yield per acre with this program as much as we hope to, site preparation will pay for itself many times over, in increased and better wood."

Some woodlands managers are still skeptical of site prep, partly because of the high cost, partly because they are not certain it will really pay off. But a prominent mill executive recently commented to PULP & PAPER: "There's a pretty stiff investment involved in building a paper mill . . . or buying timberland. Return on the investment is what really counts in the long pull."

The same, he said, can be said for site preparation.

Two Basic Principles . . .

Rayonier employs two important basic factors in its work on land preparation. First, most of the work is done on a contract basis with careful records kept to determine and control cost; second, Rayonier likes to work in large areas of 1,000 acres or more.

"Each of our contractors keeps a time card," said Hal Belcher, Rayonier forester. "On that card he tallies exact time the operator is on the tractor doing the job. It is broken down into harrowing time, dozing time, total

time for the day. That way we're investing in the man's labor, not in his lunch periods and down time. Some operators even have two operators and they keep the equipment moving all the time during an 8 to 10-hour shift.

Clearing a thousand acres at a time has a distinct advantage over doing 20 or 30 acres at a clip, too. Transportation costs are lower because tractors do not have to be moved every few hours. On one thousand acre tract, the contractor only lost 30 minutes due to moving his tractor.

"Working 20 to 30 acre tracts, tractor transportation becomes a major cost factor," said Mr. Belcher.

Working larger areas also virtually eliminates the weather problem.

"You can always find some part of a tract that big that isn't under water even after the worst rain storms," Mr. Belcher continued. "During February and March we never had to stop plowing once because of the weather, yet we had a total of 12 inches of rain."

Two Types of Site Prep . . .

Two problems are faced in clearing land: One, the clear cutting and preparation of areas predominantly growing pine; the other, areas in which the dominant tree is hardwood. Pine



WHEEL SAW cuts off trees close to ground, prevents breaking of discs when harrow strikes high stumps.

areas are now clear cut down to the last tree ("We want the land as clear as the palm of your hand—or as near it as is economically possible") while hardwood tracts are cleared except for giant size hardwoods. Small stuff is kayoed with a tractor. The big live oak trees are double-girdled, a system Rayonier has recently started using. Instead of the normal girdling prac-



DOZER BLADE IS LIFTED when not needed.



HARROW PLOWS UP SOIL, uproots undergrowth.



TURPENTINE BUTT is neatly brushed aside by dozer blade.



DOZER BLADES LOWERED to find hidden stumps.

tice of cutting a single groove around the tree, two grooves are made about six inches apart and the bark is knocked out between them. They hope it will kill the tree faster, reduce the time for dying oaks, and drain food and water from the soil.

The nature of the area and type of undergrowth determine the size of equipment to be used in plowing. Generally, the smallest type tractor that will do a competent job is used.

After cutting, Rayonier prepares its lands using tractors of the Allis Chalmers TD 18, Harvester HD 16, and Caterpillar D7 class, equipped with dozer and Rome TRH 20-30 offset harrow. Company recommends $\frac{1}{2}$ in. harrow blades over $\frac{3}{4}$, because they are much sturdier. Area and soil control type of equipment is used.

One problem: Hardwood areas pose a king-size headache in the form of debris. Since trees are not removed for pulpwood, as are pines, the areas must be cleaned of knocked down oaks, big limbs, etc. In many cases, choppers are used to break up the stuff. But Rayonier is still hand-loading and removing a great deal of this material. Labor for this work is costly. Rayonier is looking for a better and cheaper way to do it.

Cut 'Em All . . .

You learn a lot in this kind of work, but one thing Rayonier stresses is "complete clear cutting."

"It doesn't pay," says Hal Belcher, "to leave small clumps of pulpwood standing in the middle of prepared areas, just because they look like good stands or the trees are half grown. For one thing, these older pines tend to stunt the growth of the little ones. We figure one partially grown pine tree will stunt the growth of at least 10 planted seedlings. But another reason is that 10 or 12 years from now, when the new seedlings are half grown, you have to go in there with tractors, saws and trucks and get that older stuff out. Result is, you tear up a lot of the young trees you've spent a lot of money planting. We'll sacrifice up to five acres of growing pulpwood to make a uniform cut. And in some cases we may cut out more than that."

"Thing is this, once we've got the tract cleared out and planted, this problem of small stands won't bother us anymore. From then on out we'll be able to step in and treat the whole area the same. When the trees are

BAD IDEA—This near-perfect stand of young pines was left during clear-cut because trees were so good. Rayonier has learned whole area should have been cut, quality of trees ignored.



full grown and cut out, the whole area is then ready for replanting.

"We look at it this way: Once we've got an area planted we don't want to stick our necks back in there for another 15 or 20 years, except for normal thinning, control burning and other good forestry practices."

On Prepared Sites, "Supertrees" . . .

Rayonier in the future will be preparing its lands for some special "customers." These will be prize seedlings, grown in one of the company's two nurseries, the Morgan nursery at Yulee, Fla., and the Georgia nursery near Glennville.

As part of the sweeping genetics

program being carried out at the University of Florida, Rayonier supplies cuttings from its superior trees to the university. These are grafted on young seedlings which are returned to the Rayonier seed orchards. Experts predict these trees should produce cones which will father superior type trees, faster growing, larger, with more yield. Expected increase in forest productivity from them: 15 to 30%. Many other pulp and paper companies are taking part in this big program.

Under this program, Rayonier expects to grow trees to pulpwood size in 15 to 20 years and to increase its yield per acre many times over.

Why Rayonier Accents Site Preparation . . .

Not always a bed of roses, site preparation has its dilemmas. One of the worst is the unmerchantable pine, the runt of the litter—too small to make good pulpwood yet large enough to become an economical hazard when handled by tractors.

"We can knock these small pines over with a D-4 size tractor okay," Rayonier's Hal Belcher said, "but then they become a debris problem, like mangy hardwoods."

Almost every young pine stand contains long, spindly, unmerchantable trees which are left when the area is clear-cut. These trees are a problem in land preparation. They are pushed over and most of them are uprooted by the tractor and harrow. A few such "mule tails" are not objectionable but if there are too many of them they must be either dozed into a pile or a nonproductive area such as a pond or swamp. At times they are hand loaded

into a tractor-drawn cart and removed.

No attempt is being made to pre-



FENCE MAKER provides one answer.

pare the pond and swamp areas. Ridding them of their present trees would only solve half the problem since these are poorly drained areas which only support pine trees on the highest elevations within them. The use of

these areas for forestry purposes will have to wait until land utilization for forestry becomes even more intensive.

Sometimes ingenuity can help solve troublesome factors like the "mule tail" pine. In Florida, Rayonier found

a fence maker who used pine from 1½ to 3¼ inches in diameter. Rayonier offered to give him all the pines of this size he wanted if he, in turn, would clean off all scrubs, even those too small for his use. He agreed.



IS SINGLE CUT more economical in the long run than DOUBLE?

Economic Question: Single vs. Double Cut?

Cost-conscious Rayonier still probes this question. The advantage of two-pass cutting can readily be seen in picture at right. At left, single-cut land is still rough, strewn with debris, while double-cut area at right is cleaner, more level, with possible bet-

ter destruction of vegetation roots.

But Rayonier found this second cut is not necessarily cheaper than the initial pass. One reason: Tractor shoes get less traction in soft earth, second pass is often slower. With a single cut costing \$6 to \$8.50 an acre, the dou-

ble cut will usually cost more than twice as much, in some areas from \$20 to \$25 an acre.

"Sometimes," says Rayonier, "that second shot is an absolute necessity, especially where you have a big sump problem or thick underbrush and roots."

Although there are no ironclad rules, Rayonier foresters seem to agree that most often two-pass preparation is not worth the investment.

Getting Area "Clean as Palm of your Hand"



TREE, AGE 3, measures 47 in.



TREE, AGE 2, grows 53 in.

The two pictures just about tell the story. The two seedlings being measured by forester Hal Belcher are growing less than a mile apart in Florida. The one at the left, now in its third year, is 47 inches tall. It is a planted seedling grown on unprepared land. The seedling at right, which was planted in prepared land, is only in its second growing season, already stands 53 inches high, has a 37 in. terminal growth.

Rayonier guesses that its trees planted in prepared sites will grow to the same height in 20 years as natural reproduction will in 30.

Those who wonder about the cost can look at some other figures. The "prepared" seedling above was planted in a single cut area—cost: from \$6 to \$8.50 an acre, or the cost of one high-priced unit of pulpwood. Expected return from this investment: An increase of about 10 units to the acre.

TRANSFERRING 5,500 BD. FT. LOG SLING-LOAD from pond to deck for receiving bundled logs at West Linn. Note fixed-position control room, at left of suspended logs. Small building in center foreground houses 25-hp motor driving propeller creating current in water to carry strap-bundled logs (left foreground) into log well where crane slings are applied and steel straps removed.



Unique Bundling System

Replaces slow and costly conventional equipment at West Linn

● Proving an efficient means of keeping the wood mill of Crown Z West Linn, Ore., plant supplied, this modern half-million dollar log bundle handling system replaces a conventional type log haul which had caused excessive downtime.

All of the plant's raw product wood is obtained as rafted logs brought in by river tugs. Over the past several years flat rafting progressively gave way to rafts formed of steel-strapped, bundled logs. The change has been so extensive that receipt of flat-rafted logs is all but discontinued.

Crown's West Linn plant sets on the Willamette River in a location where it is impractical to bring logs in directly by truck or rail. Consequently rail-hauled logs are unloaded and rafted on the opposite side of the river. Rail transported logs are strap-bundled on the rail cars at point of loading. Logs transported directly to

the river by truck are strap-bundled just prior to being transferred from truck-trailer to the water.

In unloading the load-size bundles, from either truck-trailer or rail car, they are lifted clear of the carrier and lowered into the water for rafting.

To get the bundled logs into the mill, prior to installing the new handling facilities, it was necessary to release the secured logs by taking the straps off while still in the pond. The loose logs were individually "pike-poled" into the log haul one at a time for delivery to the wood mill. Besides being slow, the process created a difficult sinker problem.

The non-floater logs contained in the bundles sank to the bottom when released by removing the steel wrappers. These sinker logs were periodically removed by dredging. By this process 2,000-3,000 logs per month were recovered.

Eliminates Sinkers . . .

Crown's bundle-handling system completely eliminates the sinker problem and delivers logs in mixed assortment of sizes directly to the wood mill about 100 yards away. To meet the mill's 400M feet per day wood requirements the log-handling unit and wood mill currently operate 96 hours per week. The increased log-handling capacity is expected to facilitate converting to a weekly schedule of ten 8-hour shifts.

The recent addition is the result of preliminary engineering carried out by the West Linn staff and detail engineering provided by CZ's central engineering office in Seattle. C. L. Stupfel headed the detail phase. John H. Moak, plant engineer at West Linn, supervised construction as CE's representative. Hoffman Construction Co. had the general contract, Electrical Construction Co. the electrical work.

and General Construction Co. built the foundations.

Description of Equipment . . .

Installed facilities include a 50 by 120-ft. deck section equipped with two separate sets of log sorting-transfer equipment and a 60-ton 50-ft. Ederer bridge crane which travels full length of the deck plus an additional 40-ft. out over the log well. Ten 12-ft. diameter concrete piers support the structure.

The crane's lift unit—a spreaderbar equipped with two wire rope slings suspended from slotted unloader-hooker arms—is lowered into the log well and halted immediately above a floating log bundle. A two-man crew, which takes care of the pond phase of the operations, places the slings around the bundle and secures the free end of each in its respective hook slot.

The crane operator—located in a stationary control house mounted at one side of the log well and above level of the deck, from where he can observe and control all operations from well to wood mill—raises the hoist unit sufficiently to tighten the sling lines and slightly elevate the log bundle. After the pond crew removes the encircling steel straps from the logs, the crane takes its slingload of logs up to the deck and deposits them on transfer chains.

After depositing the load the crane operator activates haulbacks attached to the sling lines. The resultant pull applied to the "in and out" end of both slings tilts the slotted unloader-hooker sufficiently for them to slip from the retainer. Thus the slings are mechanically released following delivery of load.

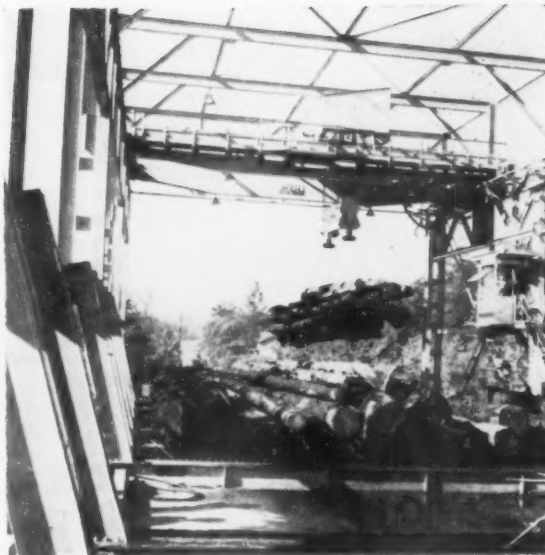
Bundles arriving at the mill average 5 to 6M board feet in volume and may contain from 3 to 100 logs. Two deck-handling systems, each complete with log conveyor connecting directly with the wood mill, facilitate keeping logs of assorted sizes moving into the mill.

Deck Systems . . .

Each of the deck systems consist of two transfer sections—a receiving deck and scramble deck. The former, on which the crane deposits the logs, delivers logs to the latter which in turn delivers to one of the two conveyors via a log kicker. Heavy duty Port alloy chain (Portland Chain Mfg. Co.) is used on both deck transfer sections. The receiving section is equipped for forward drive but the scramble chains have both forward and reverse drive to facilitate delivering one log at a time to conveyor.

Either deck unit handles logs up to and including 60-ft. in length.

DE - STRAPPED BUNDLE is lifted to deck by Ederer bridge crane. Logs in foreground are enroute to log conveyor at right (not shown).



DECKS HAVE TWO SECTIONS.

Logs brought by crane to receiving deck (right) are delivered to lower-level scramble deck (left) serving one of two log conveyors.



HOIST MECHANISM is examined by F. R. Benfield, CZ wood mill supt. Both ends of hoist slings fit in slotted hook. Free end releases mechanically, after depositing load on transfer chains, by pull of haulback which tilts retaining yoke so that poured Esco ferrule on end of sling slips from slot.



The conveyors transporting logs to the mill have Esco manganese chain and flights which ride on water-lubricated chilled cast iron wear plates. One conveyor is 370 ft. long, the other 420 ft. Each delivers logs directly to operating floor of the wood mill—a modern addition built five years ago and featured in the March 1952 issue of PULP & PAPER.

Each conveyor delivers logs to its

respective swing cut-off saw located just inside the wood mill. One of these cut-off units was added as part of the bundle-handling installation. The other saw previously took care of all the cut-off work. Both are Sumner assemblies using 108-in. circular saws.

A refuse conveyor serving the log handling system transports loose bark to the power plant where it is utilized as hog fuel. ●

Program Set for New York

Pulpwood Week brings many speakers to APA Annual

Meeting to discuss problems selected by leaders

● The program for Pulpwood Week, 1958, to be held as usual in the Waldorf Astoria, New York City, Feb. 17-19, has been selected from 50 suggestions developed at an APA board meeting brainstorm session. It represents topics on which members place a high priority.

The APA's forest policy forum (Monday night, Feb. 17, 8 to 10 p.m.) themes forest inventories and the corporation balance sheet. Explains Executive Secretary W. S. Bromley of APA: "This is a subject of considerable importance to top management, that they have a better understanding of the significance of land and timber in their capital structure and operation's costs."

Prof. Al C. Worrell, Yale School of Forestry, will be guest speaker. Comments from a panel will give the investment viewpoint (Eli Ferguson, vice pres., Equitable Life); an accounting viewpoint and the taxation viewpoint by a lawyer who specializes in taxation.

Pulpwood Logging Accident Survey . . . This is a 2-year survey on work injuries in logging, the first one made since 1944 by the Bureau of Labor Statistics. Speaker will be George R. McCormack, chief, special studies branch, Industrial Hazards Division of the bureau.

Inexpensive Logging Cost Studies . . . Sam Guttenberg of the Southern Forest Experiment Station will discuss a procedure on how to make company analyses of logging costs.

Lowering Costs by Stabilizing Production . . . This will be a panel discussion on the planning of timber management, manpower and equipment

in pulpwood production to lower logging costs, maintain regular wood flow to the mill and increase company profits.

Contribution to Local Economy . . . A representative of a research agency will be the speaker on research into the economic contribution of one industry to a state.

Progress in Forest Management on Company Lands . . . A top man from the AFPI will reveal results of their survey of forest management and recreational use of company lands.

How to Produce Best Qualified Foresters . . . This will be a panel discussion to show how forestry schools and industry can work together to provide foresters adequately trained for industrial forestry. Speakers will discuss industry scholarship programs, trainee programs, research grants to graduate students and how forestry schools meet the challenge.

The growing political power of labor unions will be the subject at the APA's annual luncheon by Charles M. Mortensen, manager, trade and professional assn. dept. of the U.S. Chamber of Commerce.

Giant Hydraulic Barker

Sumner Iron Works is fabricating a monster Bellingham-type hydraulic barker to process redwood logs up to 12 feet in diameter and 44 feet in length. Built for installation at Pacific Lumber Co. mill in Scotia, Calif., the unit's hydraulic system will deliver 1200 gpm at 1600 psi for removing the thick, stringy redwood bark. Normal capacity will be 400,000 to 500,000 bd. ft. per 8-hour shift.

McGowin Elected

N. Floyd McGowin, 57, president of W. T. Smith Lumber Co., Chapman, Ala., since 1934, is newly elected president of the National Lumber Manufacturers Assn. He succeeds Walter M. Leuthold, Deer Park, Wash., lumberman who became board chairman of NLMA. Mr. McGowin is also a director of the Southern Pine Assn. and National Assn. of Manufacturers.

Electronic Weight Scale

On Lift Truck Loader

An electronic weight scale mounted on a lift truck loader now enables a single operator to combine the jobs of scaling and handling into one at West Virginia Pulp and Paper Co.'s Prosperity, S. C., woodyard where rough pine slabs are purchased for debarking and chipping.

Major components of this 20,000 lb. capacity scale are: *First*, two strain gauge load cells; *second*, an amplifying box which steps up the electrical impulse coming from the load cells; and, *third*, a digital-type scale indicator (similar to that on a gasoline pump) which records weight readings to the nearest 20 lbs. (a value of 5 to 6¢ based on current F.O.B. price paid for pine pulpwood in the South).

Power for the scale is supplied by the 6 volt D.C. battery which is used to operate the loader. The scale is available from Byron Miller & Assoc., 5018 Allan Rd., Washington 16, D.C.

Allowable Cut Not Harvested

"Oregon has had another 'Tillamook Burn' in the last ten years," according to W. D. Hagenstein, executive vice pres. of Industrial Forestry Assn., Portland. This "burn," he pointed out at a hearing by the state dept. of planning and development, was caused by failure to harvest more than five billion feet of federal timber which should have been cut.

This creates an artificial timber shortage, skyrockets timber prices and drives costs of producing lumber, plywood and paper up sharply, he said.

Mr. Hagenstein reported that Oregon's national forests, with 45% of the state's timber, furnished only 16% of the log harvest in the last decade while private owners, with 35% of the timber, provided 75% of the logs going to the mills. As an example of what Oregon could expect by diversification of wood manufacture, he said "Washington uses only 63% as much timber as Oregon but realizes 21% more for its forest products and 29% more payroll dollars per thousand board feet of logs used."

Pulpwood Personals

WILLIAM A. "BILL" JOHNSON takes over as forest engineer, Northeastern region, American Pulpwood Assn., succeeding **JIM HENSEL** who moves over into the Lakes States to cover that region and the West. Jim will headquarter at 109 Grand Ave., Wausau, Wis. Bill is at 533 Forest Ave., Portland, Me. He comes from Brown Co., Berlin, N.H., where for 10 years he was wood purchasing agent, technical asst. to the woodlands mgr. and chief of the scaling unit. He has his b.s. in forestry from the U. of New Hampshire. . . .

JOSEPH C. ROBINSON promoted to head wood buyer at Simpson Paper Co., Everett, Wash., successor to **JAMES C. HAYES** who retired at age 65. . . . **ROBERT L. FULLER**, 44, timber buyer for CZ north-west timber dept. since March 1955, died of heart attack while inspecting tract of forest land in the Molalla, Ore., area. . . . **LLOYD G. GILLMOR** promoted from timber management division of U.S. Forest Service regional headquarters in Portland to supervisor of Olympic National Forest.

H. RAY HENDRICKS is now conservation forester for West Virginia Pulp and Paper Co.'s Covington, Va. area. He succeeds **BOB GUENTHER** who's been promoted to the wood procurement staff at Westvaco's Mechanicville, N. Y. mill. Mr. Hendricks has been service forester with Virginia State Forest Service for 6 years; studied for his bachelor's at North Carolina State College of Forestry.

JIM BATES has been promoted to chief of Brown Co.'s scaling operations and **RODNEY WEBB**, to chief of control unit, woods dept., Berlin, N. H.

ART BENNETT, manager of woodlands operations for Armstrong Forest Co., is now vice president, succeeding **E. F. "HATCH" O'HARA**, who has resigned. Also moving up is **CALVIN SAUNDERS** as asst. secretary. Mr. Bennett has been with Armstrong for 17 years, has a b.s. in forestry (1940) from Penn State College.

E. MARTINSSON has been appointed director of silviculture for Howard Smith Paper Mills and subsidiary companies. He was formerly Ontario woodlands mgr. and has been succeeded in that post by **L. H. PAQUET**. Mr. Martinsson has been with Howard Smith for more than 30 years, having joined the organization soon after arrival from his native Sweden. Mr. Paquet, also with the company more than 30 years, was formerly purchaser and dispatcher of wood. Both men will move from Montreal office, Mr. Martinsson to Windsor Mills, Que., and Mr. Paquet to Cornwall. . . .

Heading Pacific Northwest Forest Research Advisory Committee: **E. F. HEACOX**, Weyerhaeuser Timber Co., chairman; **C. W. RICHEN**, Crown Z., vice chair-

man; **R. W. COWLIN**, Pacific NW Forest & Range Exp. Station, secretary. . . .

Twenty-four Southeastern farm boys in the FFA cooperative forestry program have compiled an impressive record in their collective activities.

Here is what they did: Planted 540,000 pine seedlings, constructed 59 miles of fire breaks, selectively cut 55 acres, made improvement cuts on 395 acres, hardwood control on 220 acres, thinned 212 acres, pruned 13 acres, control-burned 15 acres, and gum farmed 3,300 acres.

They also harvested 219,400 board feet of saw logs, 6,000 veneer blocks, 8,790 fence posts, an additional 1,900 electric fence posts, 1,100 cords of pulpwood and 110 cords of fuel wood, 600 poles, and 250 cross ties.

A. R. MONTGOMERY has retired as manager of the lumber and logging dept., Fraser Cos., New Brunswick, and has been succeeded by **V. C. BASTIN**, formerly assistant manager. Mr. Montgomery was with the Restigouche Co., a Fraser subsidiary, in the early 1930's and soon afterwards was named assistant manager of the department which he headed after promotion last year. Mr. Bastin is a graduate of the University of New Brunswick's school of forestry and joined Fraser Companies in 1936 as a forester. **J. K. WHITTAKER**, who has been general supt.

of the lumber and logging dept., has now been appointed asst. manager. . . .

HOWARD A. POST, since 1948 forester with Minnesota and Ontario Paper Co., has been appointed forest resources assistant in the National Resources Dept. of the National Chamber of Commerce in Washington.

BENTON R. CANCELL, executive vice pres. of St. Regis, announced changes in St. Paul & Tacoma Lbr. Co. (St. Regis subsidiary): Logging operations of the two firms are combined to function under **W. HILDING LINDBERG**, St. Paul & Tacoma vice pres., who becomes gen. manager of this operational phase; **ROBERT L. MARTIN** (St. P. & T.) named logging manager; **ROBERT DELONG** (St. Regis), asst. logging mgr.; **EDWARD SEDLACEK**, formerly chief forester for St. P. & T., is chief forester for the combined timberlands; **FRANK HOBI** (St. P. & T.) appointed asst. gen. mgr. responsible for land acquisitions, land appraisals and records. . . . **EVERETT C. CRUGGS II**, pres. of St. Paul & Tacoma, has been elected a director of St. Regis. . . .

MASON B. BRUCE, supervisor Olympic National Forest, becomes head of resource div., Alaska region, USFS, Juneau, succeeding **HOWARD JOHNSON**, who joins office of the chief USFS in Washington, D.C.

Pulpwood Production

Increases in Central States

A recent 100% canvass of pulp and fiber mills drawing pulpwood from the Central States revealed that pulpwood production reached 272 thousand standard cords in 1956—31 percent higher than in 1955.¹ This increase was shared by all of the Central States except Indiana. The following table shows pulpwood production by species groups and compares total production for the 2 years by states:

State	Pine	1956 Pulpwood production (Standard cords, unpeeled)			Increase Over 1955 (Percent)
		Hard hardwoods	Soft hardwoods	All species	
Ohio	1,100	74,100	20,100	95,300	17
Illinois	100	10,800	69,200	80,100	26
Kentucky	25,000	12,100	16,200	53,300	63
Indiana	0	2,300	19,700	22,000	—1
Iowa	0	4,000	15,000	19,000	265
Missouri	1,000	200	1,200	2,400	100
Six States	27,200	103,500	141,400	272,100	31

In all, 19 mills were found to be using pulpwood produced in the Central States in 1956. Of the pulpwood produced, 26.1 thousand cords (about 10 percent) were consumed at 5 mills located in Tennessee, Virginia, Pennsylvania, and Maryland. About 5½ thousand cords of pulpwood produced in Wisconsin were shipped into mills in the Central States.

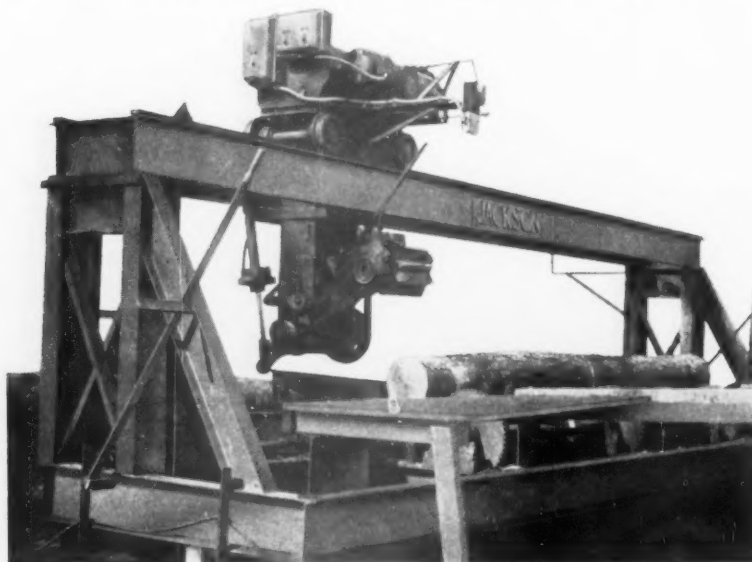
Soft hardwoods, including cottonwood, soft maple, yellow-poplar, willow, sycamore, and basswood, made up 52 percent of the total pulpwood production. Hard hardwoods, such as oak, ash, hard maple, elm, birch, and cherry, accounted for 38 percent. Pine pulpwood made up the remaining 10 percent.

Although a few new plants started operating in 1956, most of the increase in pulpwood production appears to be due to additional consumption by existing plants. The upward trend of pulpwood production seems to be well established.

¹Thornton, Philip L. 1955 Pulpwood Production in the Central States. Cent. States Forest Expt. Sta. Note 100, 2 pp., illus. 1957.

**IF YOUR MILL IS CUTTING AT
LEAST 7M BOARD FEET PER DAY
YOU WANT TO SUBSTANTIALLY
INCREASE PROFITS**

THIS COULD BE YOUR ANSWER



THE Jackson Beaver LOG DEBARKER

The JACKSON Beaver Log Barker is designed for economical use at saw mills cutting as little as 7M board feet a day. However, in tests, this barker has cleaned logs at the rate of 18M feet a day, Doyle Scale. Elimination of fast wearing parts is a feature giving low maintenance cost. These units thoroughly proven on both soft and hard woods.

JACKSON offers a thoroughly field-tested line of waste utilization equipment including chippers and screens.

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**Write for
complete details,
and help in
planning your
operation.**

Porcupine is "Goat" For Rats in Forests

Another incentive for thinning managed forests has been uncovered in the west. Foresters are being alerted to watch for wood rat damage in dense young Douglas fir stands. Oregon State College foresters found extensive damage in some 20 to 25-year stands. According to H. I. Nettleton, OSC forests manager, damage is largely confined to upper one-third of trunk and branches and is difficult to observe from the ground.

Occasional reports of damage from throughout the forest area had previously been attributed to porcupines. Mr. Nettleton reports, although rat nests were known to exist along the forest creeks. Last summer a substantial rat population build-up within the young stands was observed by forestry students working on a combined thinning, pruning, hardwood-girdling project.

Thinning of stands where dominant trees averaged 22 years of age and 40-45 feet in height revealed sufficient damage that a half-acre study plot was established. Mr. Nettleton found 43% of the first 136 trees removed from the plot's original thinning suffered from partial or complete girdling. Many tree tops broken off by an ice storm early this year were found to have previously been weakened from rodent attack.

These rats gnaw off bark down to the sapwood and use this material for insulating their large nests. No evidence of rat damage has been found in Douglas fir stands where trees are too far apart for rats to jump from one crown to another.

Poisoning by Thallium-treated grain and walnuts has been the most effective control yet found for these rodents but further study has been undertaken.

U.S. Plants Billion Trees

For the first time in history, the United States planted a billion forest trees in 1957. To celebrate this achievement the billionth tree was planted Dec. 18, at Macon, Ga. Planting by industries, private landowners, state and federal agencies are included in the total.

The record exceeds by 200 million trees the previous high set in 1956, according to a Forest Service compilation of reports from all sources.

Greatest progress in planting is occurring on private lands. This year 86% of planting was on private lands and 14% on public lands. Twenty years ago only 26% was on private lands while 74% was on public land.

The Swing to OWENS increases

Meeting every test, as never before attained, Owen Grapples are being installed by pulpwood handlers in ever increasing numbers.

The factors:

Great gripping ability and load capacity —
Speed and ease of operation —
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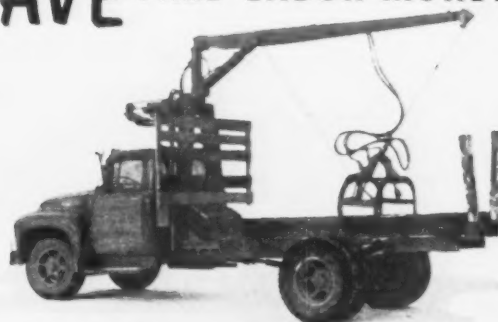
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Free Spooling Power Winch



The unit can be furnished as an all-hydraulic unit with lifting capacity of approximately 3000 pounds, or the hydraulic hoisting units can be replaced with the free spooling power winch, illustrated above. This new power winch will increase lifting capacity above 3000 pounds. Write today for complete details and quotation.

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Hydraulic and Mechanical Hoists
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from hardwoods, bleached
to a new whiteness, offers new
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Where can you use it?

The Bauerite process makes
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softwoods, too. Send for details.

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Northeast

Memo from MRC . . .

WILLIAM B. MCGOLDRICK, mgr., Price & Pierce, Ltd., is now president of the Assn. of American Wood Pulp Importers. Retiring Presy KARL CLAUSON, president of Stora Kopparberg Corp., was elected a director. PER WESTAD, v.p. and secretary of The Borregaard Co., Inc., after a 4-year term as secretary is now a v.p. DAN PITOT, Price & Pierce, was elected secretary. WILLIAM FLOHR, v.p., Parsons & Whittemore, was reelected treasurer. . . .

WILLIAM A. SUTHERLAND is now chief research engineer for converting in Scott Paper Co.'s mechanical research div., Chester, Pa. A 1936 Pratt Inst. grad, he joined Scott in 1953. . . . BILL BAXTER, asst. IBM dept. supervisor, St. Regis, Bucksport, Maine, has resigned to join Eastern Corp., Brewer, Maine as IBM dept. supervisor. . . .

CARL L. ANDERSON is acting paper mill supt. and RONALD R. BUCHMEYER, acting asst. supt., Hammernull Paper Co., DENNIS A. JACOBSON moves up to technical coordinator, THEODORE KUNTZ as general foreman and ROBERT F. MEYER as relief supervisor. . . .

WILLIAM W. "BOBBY" OLIVER recently retired as superintendent of the paper mill at Bucksport (St. Regis), Maine. . . . CHARLES STEWART becomes supt., and NELSON BOURGON, asst. supt.

CARL RAAGA, Shell Chemical Corp., has been promoted to chemist i/c of Shell's new lab facilities to study the use of hydrogen peroxide in bleaching paper pulp. . . .

HERBERT C. CHURCH, genl. supt. of the Lock Haven Div., New York and Penn., is now director of process and product



Teeple Joins TAPPI Staff

Herbert O. Teeple has been appointed technical associate on the staff of the Technical Association of the Pulp and Paper Industry, to assist in guiding and coordinating activities of technical divisions. Formerly with International Nickel Co., he served successively as secretary of the TAPPI chemical engineering committee, the corrosion committee, and most recently the Engineering Division.



"Where we all goin'?"

development. . . . GENE E. RODABAUGH, mgr., research laboratories, will report to Mr. Church. . . . TOM G. WILLIAMS, supt., Lock Haven mill, moves up to genl. supt., Lock Haven Div. (replacing Mr. Church), and HERMAN UEBEL moves up into post of supt. of Lock Haven mill. . . . CHARLES M. "CHICK" FLAIG, paper mill gen. foreman, is promoted to paper mill supt. and H. D. FLOHR, takes his place as paper mill gen. foreman. . . .

More about New York and Penn: EMIL COLQUIST retires as supt., Castanea mill; WALTER L. GRIMM, asst. supt., takes his place and ELLIS BORTORE, becomes asst. supt. . . .

CHARLES "CHUCK" DE ZEMLER, JR., has joined Eastern Corp. as sales mgr., says HAROLD HOLDEN, president. . . . GEORGE T. BAYLEY, Calkin & Bailey, exec., v.p., has been elected chairman of the board. . . .

HUGH NOLAN and DREW WEYLAND have joined Riegel Paper Corp.'s engineering staff at Milford, N. Y. . . . Former was previously in Riegel's research lab, latter has been in paper converting for 22 years, joined Riegel from Sherman Paper Products of Mass. . . .

E. V. COLLINS, formerly with Chromium Corp. of America, is now plant engineer for U.S. Metal Coatings Co., Inc., Middlesex, N. J. . . . D. E. MILNE, president of English China Clays Sales Corp., has moved offices to 6 East 45 St., New York City. . . . GEORGE J. SMART is now sales mgr., printing papers, Hammernull Paper Co. . . . BILL BARRIETT, Mead Pulp Sales, took a few days vacation recently before getting back into the harness for Canadian Paper Week and don't forget—Paper Week in New York will be here soon (Feb. 17). . . . KARL CLAUSON, president, Stora Kopparberg, is a steady commuter between Sweden and U.S. . . . ERIK GORANSSON, Cellulose Sales Corp., was among those making the jaunt to

Sweden. . . . WILLIAM B. HOGG is now vice pres. i/c sales and engineering for Hayden Wire Works. Heading up the new Boston offices is C. J. DOHERTY. . . . HERR TEEPLE, formerly with International Nickel, is now technical associate with TAPPI. . . . WARREN L. BENDER, vice pres., and salesman, Downingtown Paper Co., recently celebrated his 50th year with the company. . . .

CHARLES HODGON is now eastern regional sales mgr. for DeZurik Sales Co., in their new offices at 24 Franklin Place, Summit, N. J. Phone: CRestview 7-3191.

JAMES F. KELLY is representing A. E. Staley Co. at its Philadelphia sales office. . . .

MILTON F. FILLIUS, director of paper service div., Kodak Park Works, retires Jan. 1. HOWARD E. SMITH succeeds him. . . . GRANT RICHARDSON, asst. v.p. and mgr. of sales for Hammernull died Nov. 17 following major surgery. He joined Hammernull in 1914. . . .

WILLIAM P. SNYDER, veteran of 34 years in New York and Penn's Johnson-



Dr. John C. Tongren, Tech. Director, Watervliet Paper Co.

Dr. Tongren received his b.s. in chemistry at Pennsylvania state and his doctorate from the Institute of Paper Chemistry. He has over 20 years of experience in research, development and production at Hammernull Paper Co.

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Using sturdy, rigid Clark-Aiken roll stands with fast-loading safety half

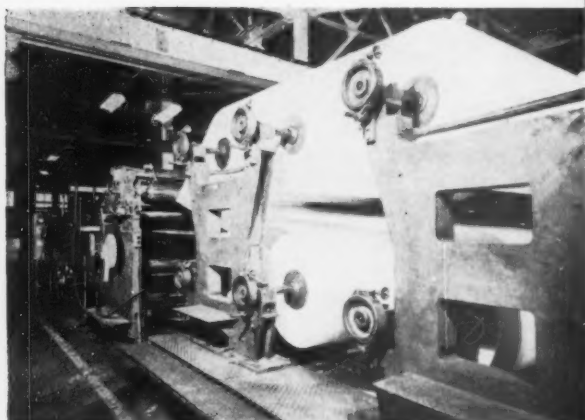
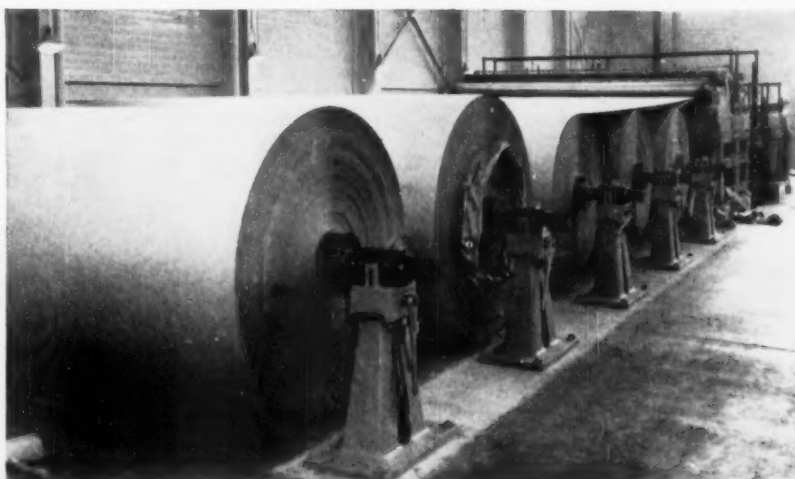


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Clark-Aiken
STUB ARBORS
another way to
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... and save labor

Weighing approximately forty pounds apiece, the two stubs of the Clark-Aiken Stub Arbor Assembly are easily handled by one man and readily inserted in close places where a single long shaft, weighing more than a hundred pounds, could not be handled. Fixed bearing and depth limit collars can't jamb, fall off or slip while the roll is in position, insuring and maintaining perfect alignment. Ruggedly made of special steel to support heaviest rolls and give many times the service life of solid shafts. One size fits rolls of any width, eliminating the necessity of carrying large inventories of shafts of different lengths. Write for Stub Arbor bulletin.



bearings, quick vertical and alignment adjustment and precision adjustable tension brakes, and employing proven turntable and transfer car principles, they can plan roll stand installations exactly suited to individual plant conditions that will greatly increase loading efficiency and cut many valuable minutes from down time required for roll changes. In doing so, they have often saved mills large investment in new machines which, otherwise, would have been necessary to meet production requirements.

If you are interested in getting maximum production from your sheeters and other web-feed equipment ... new or old ... Clark-Aiken engineers can, doubtless, offer some valuable suggestions. Phone or write

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LEE, MASSACHUSETTS

burg electrical dept., has stepped up as foreman. . . . JEROME E. DELISLE chief control accountant, is now credit mgr. for Keyes Fibre Co. . . . WILLIAM M. THOMPSON, genl. supt. at West Virginia Pulp and Paper Co.'s, Luke, Md. mill, has been promoted to asst. mgr. i/c production advises JOHN A. LUKE, mgr. of the Luke mill.

Attend Washington Conference

President Eisenhower (just a few days before his last illness), Vice President Nixon, Secretary Dulles and other officials addressed these pulp, paper and paper-board executives attending a National Defense Executive Reserve conference recently in Washington:

JOHN R. CRYAN, Fraser Paper, Ltd.; JOHN D. DAVIS, The Mead Corp.; RUSSELL C. FLOM, Marathon Corp.; J. E. FRANZEN, Hammermill Paper Co.; M. J. GRANDBOIS, St. Regis Paper Co.; FRANK HEYWARD, JR., Crown Zellerbach Corp.; R. D. JAMES, American Boxboard Co.; L. K. LARSON, Weyerhaeuser Timber Co.; JAMES L. MADDEN, Scott Paper Co.; WILLIAM M. McNAIR, St. Regis Paper Co.; ALBERT G. NATWICK, East Texas Pulp & Paper Co.; LEONARD E. PASEK, Kimberly-Clark Corp.; G. J. TICOLAT, SR., Crown Zellerbach Corp.; LYALL TRACY, Rayonier Inc.; JOEL B. WADE, Great Northern Paper Co.; and MARVIN J. WINSHIP, Great Northern Paper Co. These men are chosen as reservists from this industry, selected and trained for government positions in event of any future defense emergency.

Other reservists not present at the meeting are ALLAN HYER, Black-Clawson Co.; FRED MEARS, Wash., D. C.; CLARKE MOHAN JR., East Texas Pulp & Paper; and JOSEPH D. SULLIVAN, Bowater's.



CHARLES F. HONEYWELL, secy., Newsprint Service Bureau, attended the National Defense Executive Reserve Conference as a reservist assigned to the administrator's staff. Mr. Honeywell was formerly administrator of the Business and Defense Services Administration.

Riley Dies in Utica

Richard W. Riley, Sr., who worked for three New York state mills in the past 30 years, died at the age of 60 at Utica, N.Y., on Nov. 10. He was accountant at the Foster Paper Co. in Utica for the past 13 years. Prior to that he was accountant for D. M. Bare Paper Co., Roaring Spring, Pa., and Newton Falls Paper Mill, Inc., Newton Falls, N.Y. His widow, four sons, three brothers (one, Ross, at Newton Falls) and eight grandchildren survive.

Midwest

Memo from DGC

The EARL McCOURTS of Wisconsin Rapids (Consolidated Water Power & Paper Co.) spent the holidays at Camas, Wash., with their son, JAMES (Crown Z) and daughter-in-law and grandchildren . . . the ROBERT A. CALLAHANS (Mead Pulp Sales Inc., Chicago) and children, Michael, 3, and Ann Marie, 7 months, said goodbye to apartment life in Evanston and now are living in their newly acquired house at 1921 Greenwood Ave., Wilmette, Ill. . . .

RALPH FANNON, in charge of pulp sales, Marathon Corp., and his wife, WILMA, have inspected La Jolla, Calif., and have decided that's going to be their retirement home later this year. . . . CHARLES F. CHAPLIN, president and director of sales, Allied Paper Mills, will be Republican candidate for president of Cook county (Chicago and environs) commissioners. His political successes include election as commissioner and as mayor of Northfield, Ill. . . .

DR. JOHANNES A. VAN DEN AKKER, head of the dept. of physics and mathematics, Institute of Paper Chemistry, became a proud grandfather recently when a son, Paul Hamilton Emmert, was born to Van's daughter, Valerie. . . . DR. F. E. BRAUNS, on the staff at the Institute for many years, has gone to Osaka University, Japan, as a Fullbright lecturer. His address is 4 Kwamsei Gakuin, Nishinomiya, Japan. . . . LEO BERNARDIN has joined the research dept., Marathon Corp., Rothschild, Wis. He is from the Institute. . . .

A. H. BUNKS, asst. mgr., Consolidated's Appleton pulp division, and chairman of the Northwestern Supts. Division, announces that following a Jan. 30 meeting at Whiting hotel, Stevens Point, Wis., the division will meet in April at Marinette, Wis., and on Sept. 12-13 at the Conway in Appleton. L. M. GIBSON of the Kansas



Charles T. Elliott, Vice Pres. i/c Sales, Wausau Paper Mills Co. . . . succeeds H. R. Knott who is retiring, but will continue on consulting basis. Sales and general administration will be consolidated at Brokaw, Wis., mill. Mr. Elliott, graduate of Princeton, joined sales staff in 1953.



Durand, President, Port Huron Sulphite & Paper Co. . . . George F. Durand succeeds Norman O. Seagrave, who died recently. Joseph L. Hoolihan, plant mgr., becomes vice pres. i/c production.



Mason . . . Niederauer . . . Winkler

Mead Promotes Eight

O. B. MASON, steps up to new position of corporate director of organization of The Mead Corp. GEORGE H. SHEETS succeeds Mr. Mason as div. mgr. at Chilli-cothe, O. Two more new positions will be filled by EDWARD H. NIEDERAUER as gen. mgr., white paper operations, and P. FRANK WINKLER, gen. mgr., board operations. VINSON K. SHANNON, mgr. of the Sylva mill, succeeds Mr. Niederauer as div. mgr. of white paper mill at Kingsport, Tenn. PAUL ELLIS replaces Mr. Winkler as production mgr. for .009 mills. JAMES F. STEVENSON becomes div. mgr. at Lynchburg, Va., and CHARLES H. HORCH becomes div. mgr., Wheelwright div., North Leominster, Mass.

Strictly Personal

City Star's Flambeau mill, PAUL WEST of Thilmany and LAWRENCE W. MURTFELDT of Consolidated are planning programs. . . .

JOHN STEVENS, pres. and board chairman of Marathon Corp. until its recent merger with American Can Co., has been elected a vice pres. of Canco and will assume executive duties with the parent company. ROY J. SUND, formerly exec. vice pres. of Marathon, was appointed vice pres. and gen. mgr. of Canco's

newly formed Marathon div. Mr. Stevens and Mr. Sund, both directors of American Can, will continue to headquarter in Menasha. LESTER ARMOUR and W. E. BUCHANAN, directors of Marathon, are also directors of Canco. Appointed a vice pres. of the new div. LEO E. CROY will continue to aid in organization development and will concentrate on Marathon's packaging lines. Marathon div. vice presidents heading four operating divisions are MILAN BOEX, DONALD A. SNYDER,



Zellers . . . Seidensticker . . . Breiel



Rigney . . . Thomas . . . Matchuk

Executive Changes at Chillicothe

Election of F. L. (Roy) Zellers as vice president; N. A. (Norb) Seidensticker as vice president and gen. mgr.; Harold L. Breiel as secy.-treas.; and Thomas J. Rigney as controller, and promotion of W. A. (Art) Thomas to mill mgr., and Kon Matchuk to gen. supt., are announced by Pres. Austin P. Story of Chillicothe Paper Co.

Mr. Zellers joined Chilpaco in 1940 as supt. and has been mill mgr. since 1955. He was president of American P&P Supts. Assn. 1937-38. Mr. Seidensticker, a 1928 Notre Dame graduate, has been secy.-treas. Mr. Breiel and Mr. Rigney moved up the ladder from controller and cost accountant.

"Art" Thomas was graduated from Tri-State College in 1931, joined Chilpaco in 1945 as chief engineer and since 1950 has been asst. mill mgr. and chief engr. Mr. Matchuk, graduate of Syracuse U. in 1940, joined Chilpaco in 1955, has been asst. to mill manager and paper mill supt.

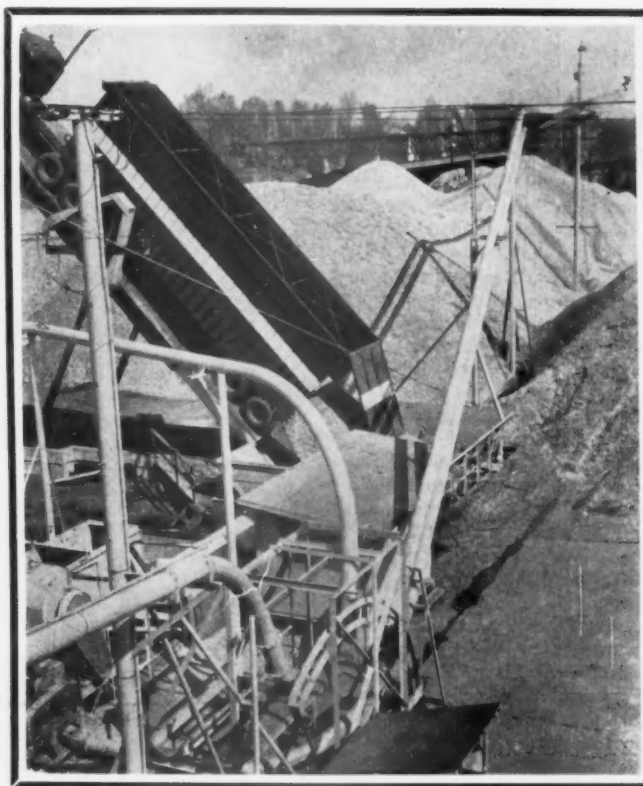
RUSSELL C. FLOM and PALMER B. M. McCONNELL. Mr. Boex will head the "Northern" products div., Mr. Snyder will direct the food packaging div., Mr. Flom, the pulp and paper div. and Mr. McConnell, the specialty packaging div.

EMMETT W. BELOW was appointed vice pres. of the finance div. and CARL R. GEISLER vice pres., industrial relations div. DOUG G. HYDE will be director of administrative services div., ROSS C. WILCOX, director of research and development div., and E. E. DEN DOOVEN, director of mfg. services div.

KENNETH WILLIAMS was promoted to the new position of waste control supervisor for the Kalamazoo mills of Allied Paper Corp. JACOB VANGIESSEN succeeds Mr. Williams as quality control supervisor. . . .

New midwest assignments for A. E. Staley Mfg. Co. are: GEORGE A. T. MOORE, asst. mgr. of the Chicago office; AL W. BRUNLIEB, asst. mgr. of the St. Louis office, and RICHARD L. KAMINS, sales rep in the Chicago office. . . .

WILLIAM J. FONDOW is new sales rep for John W. Bolton & Sons, Inc. of Lawrence, Mass., and its Emerson Mfg. Co. div. to cover Wisconsin, Michigan and part of Minnesota. Mr. Fondow was raised in Appleton, his present home, and



CUT CONVEYOR COSTS

One Rader chip conveyor does multiple duty for the Oregon Pulp and Paper Company in Salem, Oregon; builds open storage with segregated species, reclaims from open storage to four inside chip bins 700 feet away, or reloads trucks for transfer to another mill.

RADER PNEUMATICS, INC.

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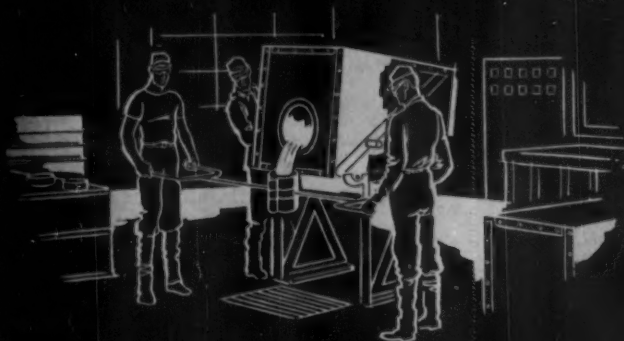
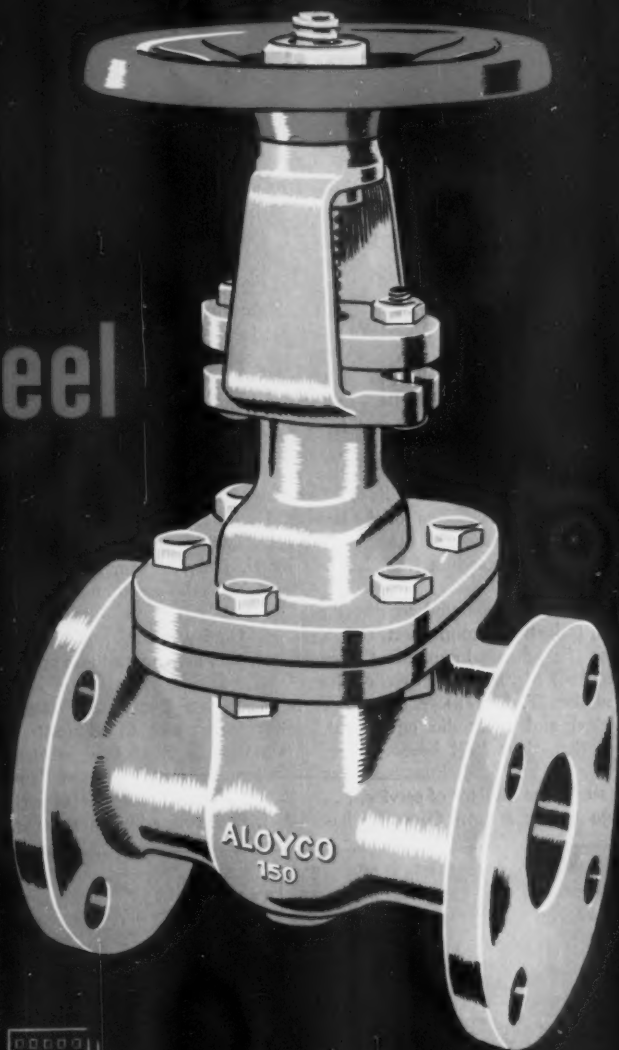
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ALOYCO 111 Gate Valve for 150 lb. service
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SPECIALIZATION! Isn't it reasonable to believe that the
 one company with experience, facilities, research and
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ALLOY STEEL PRODUCTS COMPANY
 LINDEN, NEW JERSEY



PULP & PAPER

Strictly Personal

received his b.s. degree from Western Michigan University. . . .

R. E. WERTHEIMER, of Longview, Wash., was elected a director of Thilmany Pulp & Paper Co., filling the vacancy created by the death of his father, ROBERT S. WERTHEIMER. . . .

STANFORD H. COLLINS is new plant mgr. of Container Corp. of America's paperboard mill at Cincinnati. RAYMOND M. McDANIEL succeeds Mr. Collins as plant mgr. of the firm's Noblesville, Ind., strawboard mill. Mr. McDaniel was formerly mill supt. at Carthage, Ind. . . .

R. E. MORRIS, mgr. of industrial sales for the Industries Group in Allis-Chalmers Washington, D. C. office for the last year, was appointed mgr. of the group's St. Louis district succeeding J. C. LOVE-LACE, resigned.

C. B. SMITH is promoted to director of service, Industries Group. C. R. GIBBS, supervisor of mechanical equipment since 1955, succeeds Mr. Smith as mgr. of the service section. T. J. HANLEY, supervisor of electrical and hydraulic equipment, service section, since 1951 becomes asst. mgr. of the section. L. B. BURGESSON was named asst. to the director of service. . . .

Chicago Bridge & Iron Company has

appointed FRED KOUKA mgr. of its foreign erection div. with headquarters in New York. HUGH MINTER was transferred to the Tulsa sales office from the general sales office, Chicago, and ROBERT HULL has moved from foreign erection to the foreign sales dept. in New York. . . .

DONALD D. PETERICH joined Rhineland Paper Co.'s engineering dept. as project engineer. He is a native of the Wisconsin Rapids area and graduated from the U. of Wisconsin. . . .

JOHN L. ANDERSON is mgr. of American Potash & Chemical Corp.'s new Chicago office at 3557 W. Peterson Ave. EDWARD C. O'CONNOR and WALLACE O'DOWD are sales reps for the new office which will service an area bound roughly by N. Dak. to Kan. on the west, Okla. to Ark. on the south and Ky. to Mich. on the east. . . .

J. C. SHOUVLIN, pres. of the Bauer Bros. Co., announces these appointments: ROGER J. SHOUVLIN, vice-pres., administration; LEE EBERHARDT, asst. to pres.; BEN PERKS, asst. to administrative vice-pres. and mgr. of field service; HARVEY FISHBOUGH, mgr. of export dept.; JAMES E. IRVINE, asst. director of engineering; R. J. PROCTOR, administrative asst. to di-



Kuenmerling Fleischmann

Promotions at Wausau Paper

OTTO KUENMERLING is promoted from gen. supt. to production mgr. at Wausau Paper Mills Co., Brokaw, Wis., and WALTER FLEISCHMANN, tour boss, becomes paper mill supt. PAUL GAPPA is appointed asst. supt.

rector of engineering.

DON BORDEN, mgr. of refiner sales; E. L. RASTATTER, mgr. of cleaner sales; A. H. ADAMS, mgr. of Pressafiner sales; W. M. ORCHARD, mgr. of projects; and C. L. DURKEE, asst. to pres. and mgr. of digester sales. . . .

EUGENE E. LOUGHIDGE is new gen. supt. of River Raisin Paper Co.'s Monroe, Mich., corrugated plant. He was formerly gen. supt. of the National Container Corp. plant at Atlanta, Ga. . . .

LESLIE RISTOW was appointed asst. sanitation and maintenance foreman at the Wisconsin Rapids div. of Consolidated Water Power & Paper Co.

ULRICH SHAURETTE has been appointed asst. millwright foreman for the Wisconsin Rapids div. FRANK PRERBANOW assumes the new position of Painting Coordinator.

DR. WILBY E. COHEN, senior principal research officer for Commonwealth Scientific and Industrial Research Organization, Div. of Forest Products, Melbourne, Australia is making his second extended visit at the U.S. Forest Products Laboratory, Madison, Wis., to work on the dimensional stabilization of paper and to test an idea for better paper from pulps of dense hardwoods. . . . The Chicago branch of Fischer & Porter Co. has moved into its new building at 1205 S. 8th Ave., Maywood, Ill. . . .

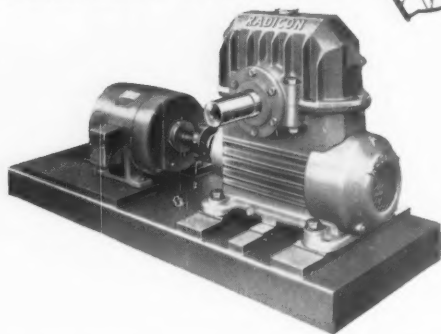
Pacific Coast

Memo from LHB

LOREN V. FORMAN was appointed gen. mgr. of all Scott Paper Co.'s West Coast manufacturing and timber operations. He has been gen. mgr. of Scott's Everett, Wash., plant since 1956. A chemical engineering graduate of Iowa State College, Dr. Forman received his ph.d. from The Institute of Paper Chemistry, Appleton, Wis. . . .

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All Radicon drives are fully tested and inspected in our own fitting shop before shipment. When the Radicon complete drive is delivered (with all lubricants furnished) and ready to set — you've decided on the simple solution — Radicon, the best!

No need to buy reducers, motors, couplings — then spend time shimming and aligning. Eliminates a major part of your drive design problems — just position the efficient new Radicon complete drive, set six bolts, and you're ready to roll. Radicon reducers and motors are carefully shimmed and aligned on bed plates of heavy fabricated steel double box construction, firmly ribbed for rigidity. This means minimum stress at the flexible coupling . . . long service, low maintenance.



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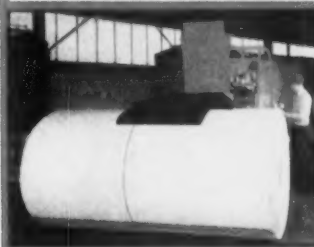
REVOLVING PAPER ROLL GRAB

Cuts Handling Costs for Weyerhaeuser

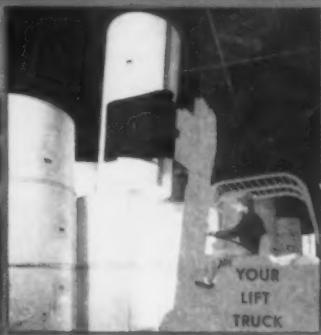


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Job, Too!

Cascade's powerful rotator quickly and safely revolves rolls weighing up to 6,500 lbs. Pilot-operated check valves insure steady clamping pressure until operator releases load.



Driver confidence in Cascade Grabs pays dividends in lower handling costs.



Cascade's high torque permits off-center clamping and rotating of this 6,000 lb. roll for higher stacking.

The Pulp Division, Weyerhaeuser Timber Company, Longview, Washington, reports it is extremely pleased with Cascade's new Revolving Paper Roll Grab. Cascade Roll Grabs offer real savings in man hours and actual dollars because of these advantages:

AUTOMATIC ADJUSTMENT FOR DIFFERENT ROLL SIZES — Drivers no longer dismount and position grab arm manually.

IMPROVED OPERATING EFFICIENCY — Rugged construction reduces down-time due to clamp failure.

SURE, NON-SLIP HANDLING OF HEAVY, HIGH-FINISH ROLLS — No more culled stock due to dropping. Costly reprocessing is eliminated. Wrapper damage is rare.

FAST OPERATION IN COMPLETE SAFETY — Driver confidence with the Cascade Roll Grab results in more rolls and more tons of paper handled per day.



The World's Most Versatile Paper Roll Clamp
Horizontal Pickup of 10" to 60" Diameters
— WITHOUT MANUAL ADJUSTMENT!

Made in 3 models: 2000 lb., 4000 lb., 6500 lb. Roll Capacities

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PULP & PAPER

Strictly Personal

GEORGE EBERHARD, board mill super, Fibreboard Paper Products Inc., Vernon, Calif., recently passed his "bar examination" when he came home with three beautiful salmon caught near Astoria, Ore. JAMES H. DUNN, Fiberboard Sumner container plant super, retired after 45 years in the pulp and paper industry. CLAY SERRAHLN has been transferred as office mgr., San Joaquin Div., Fibreboard, to same post at Stockton plant. PHIL NASH moves from office mgr., Stockton, to production mgr., Stockton container plant. JOHN HOWARD, transferred from San Joaquin div., has been appointed office mgr., Stockton div. TIM MICHAUD, public relations mgr., San Francisco, passed out cigars recently on the advent of a son at the Michaud home. . . .

FRANK TURNER, formerly of Morden Machines Co., joins engineering dept. of Bumstead-Woolford Co. at Seattle. . . .

ED BAISCH promoted from yard foreman to yard supt. at Crown Z West Linn plant. . . . CLARENCE E. ENGLUND, tech. asst. to steam & power supt. at CZ Lebanon div., became steam plant supt. of Crown's St. Helens div. Jan. 1. . . . JOHN P. GRAM promoted to master mechanic at CZ Lebanon div. succeeding EDWARD C. LECKBAND SR. who retired Jan. 1 with 36 years service. . . . ELVEN ANDERSON, CZ Camas technical dept., becomes supervisor of technical control at Western-Waxide's North Portland plant. . . . A. C. DRESHFIELD JR., formerly senior project engr. Scott Paper Co. at Chester, and W. A. SANDHOLTZ, development engr. for new paper products div. of Minnesota Mining & Mfg. Co., have been named group leaders for Fibreboard Paper Products Corp's. scientific research in the manufacture of all varieties of cartons and shipping containers according to Dr. HOWARD S. GARDNER, research and development director. . . .

BILL THOMPSON, safety supervisor of Simpson Paper Co., and wife Eileen happily announced birth of 7 lb. 2½ oz. daughter Laurel Jean (their second) Dec. 8. . . .

JERRY MUGGS, from the Institute of Paper Chemistry, has joined the central research dept., Crown Zellerbach Corp., Camas, Wash. . . .

WALTER DAGGETT, of Morden Machines Co., and wife BETTY acquired their third tax deduction Nov. 30 with the arrival of an 8 lb. 3 oz. boy. Current tally: 2 boys, 1 girl. . . . VELDON ANDERSON resigned as plant engr. of Fir-Tex Div. Kaiser Gypsum Co., St. Helens, to become supt. of wet end at U. S. Gypsum's Pilot Rock, Ore. plant. . . . BERNIE POPE, yard supt. CZ West Linn, died Dec. 6. . . .



Peterson Hamilton

Promoted at Simpson Paper Co.

PAUL F. PETERSON, formerly administrative director, becomes plant mgr. of the Everett, Wash., mill succeeding FRANK R. HAMILTON, who advances to director of research and product development.



Claude Stitt Heads Fibreboard's New Resources Development Dept.

. . . according to Jack Havard, v.p./mfg., Fibreboard Paper Products Corp. Mr. Stitt has held top management and engineering positions in the company for years. New duties include investigation of major projects in pulp and paperboard development (this, of course, includes the long term joint plan with Simpson Timber Co. for a mill in Eureka, Calif.). Also, acquisition and management of timberlands, logging operations on Fibreboard lands, administration of Tree Farms, and major water supply and effluent disposal problems. His headquarters continue, at least temporarily, at Antioch, Calif.



West Coast area officers . . .

of National Council for Stream Improvement elected at meeting in Portland, Ore. (l to r): Vice Chairman GEORGE E. MILLER, res. mgr. Columbia River Paper Mills; Chairman F. O. BOYLLON, res. mgr. Crown Z Camas plant, retiring chairman FRED J. WELEBER, asst. mill mgr. Publishers' Paper Co.; and RUSSEL L. WINGET, exec. secy. of National Council.

BERNARD A. ARTZ has been appointed district mgr. of the Fischer & Porter Los Angeles office.

ALAN ANDERSON, from atomic energy commission; Research Director Dr. ROBERT W. HESS. . . .

JOHN HAUBERG, president of Pacific Denkmann Co., Seattle, was appointed regional vice pres. of Republican National Finance Committee. . . .



ANTONIO (TONY) SANCHEZ ALDANA, operations chief—forest division of Fabricas de Papel Tuxtepec S.A. de C.V., which is building Mexico's first newsprint mill. To use mainly pine, it will consume 60,000 cubic meters annually.

Touring U. S. for Ideas for Newsprint Mill

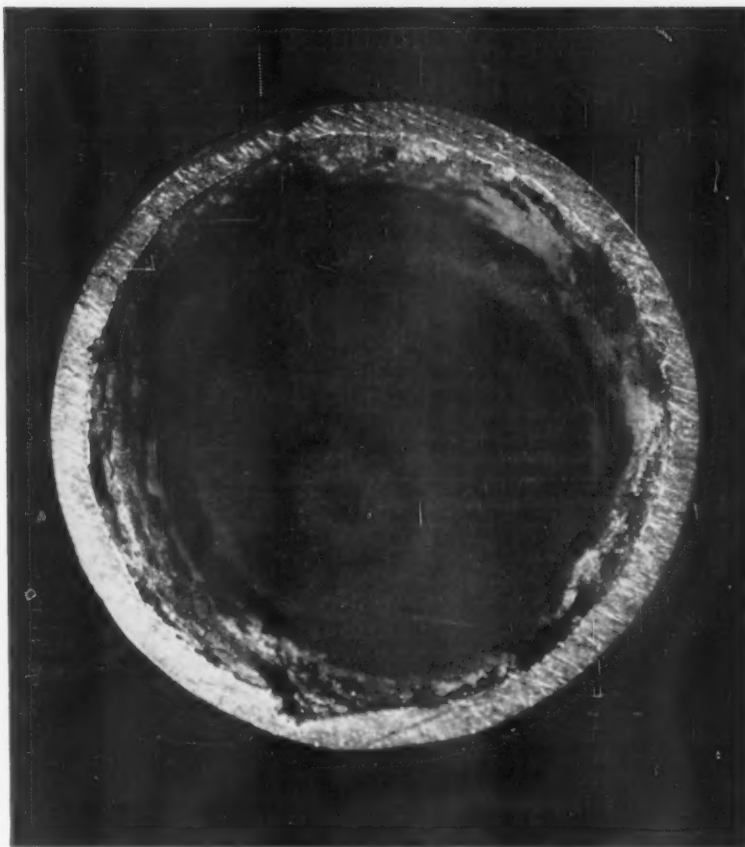
Interested spectator at the recent Pacific Logging Congress & Machinery Show in Seattle was Antonio Sanchez Aldana. Chief of operations of the forest division of a new company building, Mexico's first newsprint mill in the state of Oaxaca.

"Tony" came north to observe the latest American logging equipment and to visit with James C. Sheasgreen, former president of Pacific Logging Congress and a former logging manager for Crown Zellerbach Canada Ltd. in British Columbia. Mr. Sheasgreen had visited him in Mexico.

The new company, Fabricas de Papel Tuxtepec S. A. de C. V., will consume 60,000 cubic meters of wood per year, mainly pine. A new town called Benito Juarez is being built along with the mill. The company will build and maintain its own roads and employ all its own woods workers. Most equipment will be imported from the U.S. This includes a Lorain log loader, Autocar trucks with Page & Page trailers, McCulloch chain saws and Caterpillar tractors.

The pine grows to 10,000 ft. in elevation, while the mill is at sea level. It is a 60 mile downhill haul to mill. Trucks will haul direct to the mill, logs will be 32 ft. long. Bunks will be 8 ft. wide and GVW will be 31 tons. It will be a year-round operation. Logging begins in March 1958.

Tony Aldana was former logging manager for Mexico's Atenquique mill and has logged jungle species, mahogany and cedar.



Using vertical polarized light on a cross-section of pipe, photographer Bernard Hoffman clearly shows the ravages of corrosive action.

Controlling Corrosion in Fluid Engineering

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ELMER MAYS promoted to asst. chief electrical engineer at CZ West Linn and PAUL W. ADDIE advances to asst. chief electrician. . . .

Jack Hanny Dies

J. E. (JACK) HANNY, who retired as Crown Zellerbach vice pres. i/c of mfg. five years ago, died of a heart attack Jan. 3. He was manager of the Camas, Wash., mill for 17 years, and before that of West Linn, Ore., and Ocean Falls, B.C., mills. Born in Woodland, Wash., he earned engineering degrees at Ore. State and Stanford. His widow and mother survive.

Southern Memo from WFD

Eight pulp and paper companies in Georgia have formed a permanent research and education organization titled: Georgia Pulp and Paper Association. Among other things, they will utilize industry research and engineering departments to develop better air and water pollution abatement. W. T. McDANIEL, industrial relations mgr. at Rayonier's Jesup, Ga., mill is the group's first president. Other officers: JOHN MAY,

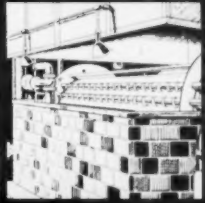
president of Georgia Kraft, v.p.; MALCOLM PINEO, technical dir. of Brunswick Pulp & Paper, secretary; J. P. SCHENCK, plant engineer at Certain-Teed products plant in Savannah, treasurer. Members include Owens-Illinois at Valdosta; National Paper Co., Atlanta; St. Marys Kraft Corp., St. Marys; Ruberoid Co., Southern Paperboard Corp. and Union Bag-Camp, all in Savannah.

FRED JONES, formerly with the Shurtle Div. of Black Clawson, became Southern representative for Pusey & Jones the first of the year. . . . ED CROWLEY, formerly of the Northwest Paper Co. and onetime Inflico southern sales representative, has taken over as representative for Carthage Machine Co., which is intensifying Southern coverage. Carthage will also have M. A. BELL operating out of Birmingham. Ed will handle Georgia and north and Mr. Bell will represent Carthage in Alabama, Florida and west.

Women of the Cathedral Parish in Natchez, Miss., sponsored a tour of houses at Christmas and the home of IP Natchez mill mgr. E. E. ELLIS and his wife was among those visited. . . . GEORGE BRANNEN, formerly with the Union Bag-

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Tabaka Joins Gulf States Paper as Vice Pres., Administration

. . . Victor P. Tabaka was pres. of Victor Tabaka Associates, management consultants, in Atlanta, Ga., and professor of business administration at Emory University. He formerly was personnel mgr. for Bell Aircraft in Marietta, Ga., and has served as consultant for Gulf States for the past four years. He is a native of Wisconsin and is 43.



Moore is Supt. of New Riegel Paper Corp. Mill at Acme, N.C. . . .

. . . Brookshire C. Moore comes to Riegel from East Texas Pulp and Paper Co., Evadale, Tex.



Complete interchangeability of parts

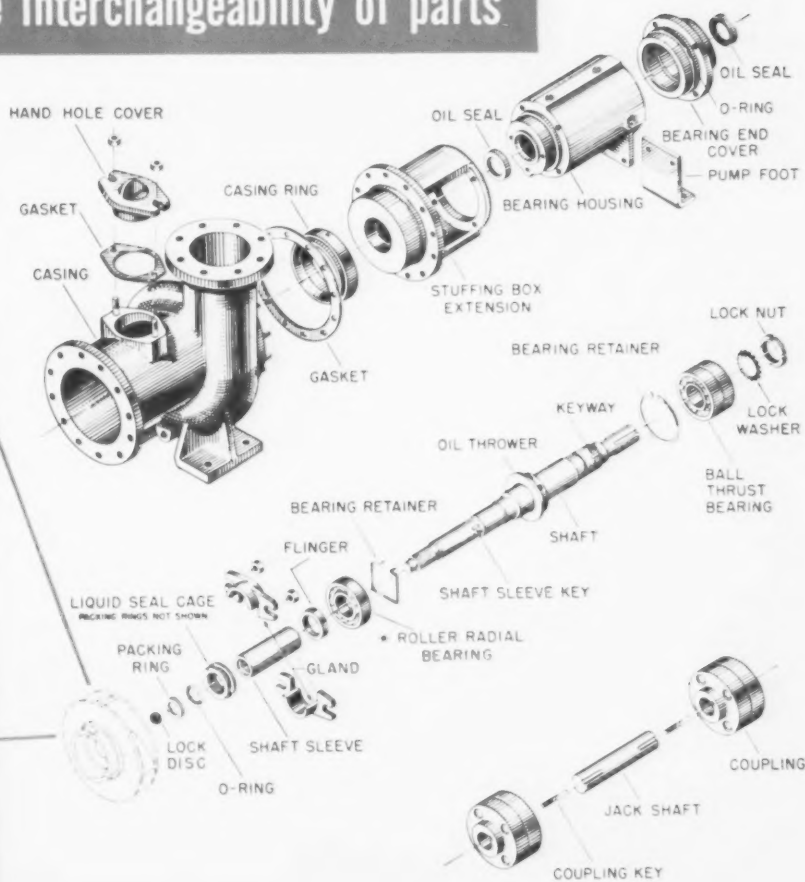
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sistency. One pump *with two interchangeable impellers* will handle every job!

By standardizing on I-R *All-Purpose* stock pumps, you can cut your spare parts inventory at least in half . . . and you'll be able to handle stocks from lowest to highest consistency simply by changing impellers. Ask your local Ingersoll-Rand representative for details on the *All-Purpose* stock pump, or write direct.

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PULP & PAPER — February 1958

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Strictly Personal



Lough Is New Western Sales Mgr., East Texas Pulp and Paper Co. . . .

. . . William Lough will be assisted by Paul K. Brownell in Eastex' Chicago office. Robert Long, formerly with J. & J. Rogers, succeeds Mr. Lough as Eastern sales rep in New York.

Camp industrial engineering dept., has been named Savannah box plant planning supervisor. He replaces GEORGE ADAMS who was transferred to the Trenton box plant. DAVID SECKINGER is asst. supervisor at Savannah. . . .

A. R. CARRICK, formerly supt. of Div. B at Brunswick Pulp & Paper Co., has been promoted to supt. of Div. A to fill vacancy left by Hansell Wade, who is

now supt. of Marathon Southern Corp. at Naheola, Ala., J. A. BOGGAN Div. B tour foreman becomes supt. of Div. B. NED QUARTERMAN, process engineer, is new tour foreman of Div. A and HOMER HICKON, recovery operator, has been named process engineer . . . C. CLINE PETERS, asst. plant engineer at the Riegel Carolina, has been appointed asst. to the manager of pulp production. . . . The John B. Chandler Co. is now representing Seapa Dryers, Ltd., out of England. . . .

GEORGE W. RENNINGER, staff chemist, American Viscose, Fredericksburg, Va., is the first chairman of a new TAPPI section—the Virginia-Carolina section. This is the third to be formed in the South. ROBERT E. BOWEN, Continental Can, Hopewell, Va., is vice chairman; JAMES L. BAKER, Albermarle Paper, Richmond, Va., secretary, and ROBERT SIMMONS, U.S. Bureau of Engraving, Wash., D.C., treasurer. An organization meeting at Hopewell was attended by 88. The section formerly was the Chesapeake and Allegheny Pulp and Paper Club. . . .

CLIFF ALLEN, from Kimberly-Clark's Kimberly, Wis., mill, was assigned to Coosa River Newsprint Co. in charge of erection of No. 3 paper machine. . . .



Dr. Charles H. Driver, Director of Forest Research, IP's Southlands Experiment Forest . . .

. . . located near Bainbridge, Ga. This is International Paper's first forestry research center in South; it has them in North. With master's in forestry from U. of Georgia and ph.d. from Louisiana State, Dr. Driver has been in research at Mobile for three years. He will have a trained staff to evaluate growing and harvesting methods.

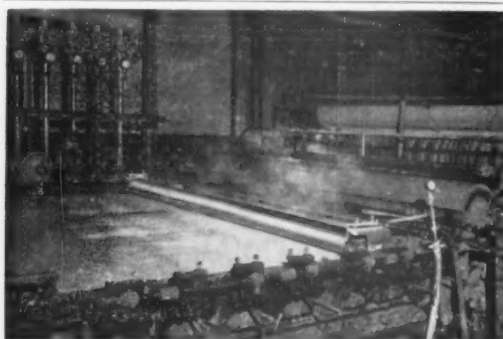
Canada

Memo from CLS

Two important resignations and election of a new company president—all three events unrelated—"broke" as news on the same morning recently in Vancouver, B.C., center of a \$600,000,000 British Columbia forest products industry. It was really quite sensational and at lunch time, at the City club, pulp and paper executives and loggers and lumbermen talked of nothing else. . . .

CHIEF JUSTICE GORDON SLOAN resigned from the bench and from his appointment as \$50,000-a-year advisor to the provincial government on forest affairs. Later he was named "Czar" of the British Columbia forest industries (see story in this issue).

CHARLES D. DICKEY JR., young Scott Paper Co. executive, was named new president of British Columbia Forest Products Ltd., builders of the new Crofton, B.C., market pulp mill. Scott has a substantial interest in the company. Mr. Dickey, a Yale graduate, will move to Vancouver. He had been vice president



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in charge of Scott's West Coast operations in the U.S., headquarters at Everett, Wash. He succeeds the late H. G. MUNRO who died suddenly of a heart attack at the age of 52. . . .

The other resignation, announced on the same eventful morning, was of B. M. HOFFMEISTER, as chairman of the board of MacMillan & Bloedel. He has been in poor health for some months. Before World War II, during which he rose to major-general in command of all Canadian troops in the Mediterranean, he was sales manager for one of the MacMillan Mills. He was made production manager for the whole organization, then vice president and president, finally chairman in 1956. . . .

TOM JONES, industrial and public relations director, Dryden Paper Co., has been elected pres. of the Dryden Chamber of Commerce . . . H. J. HODGINS, formerly gen. mgr. of all timber operations for Crown Zellerbach Canada, has been elected vice pres. timber.

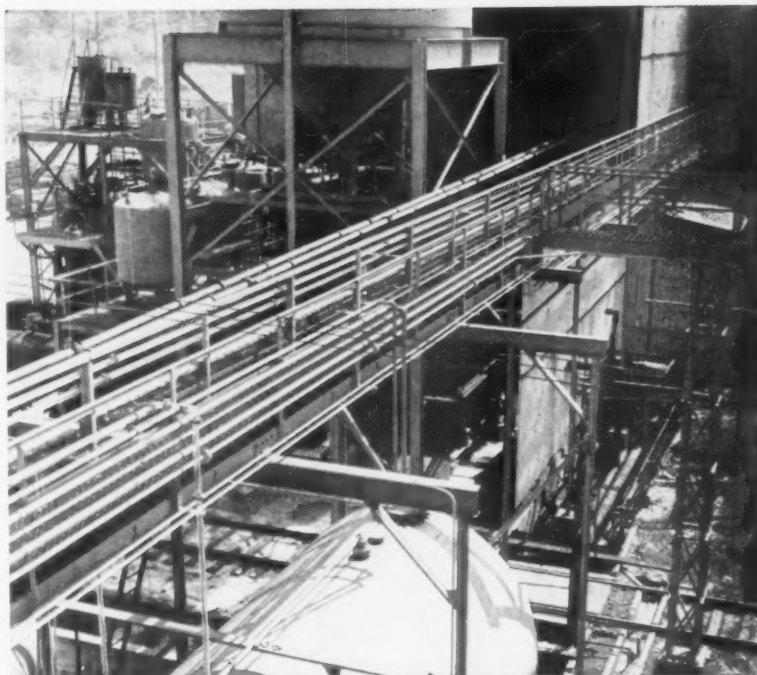
R. E. E. COSTELLO has been named mgr. of mfg. for pulp and board by Abitibi Power & Paper Co., and RALPH E. HAYES is now mgr. of mfg. for newsprint. ERNEST W. MCBRIDE has been appointed vice pres. of Abitibi, i/c mfg. . . .

ARTHUR G. POUNSFORD, who was general manager of Provincial Paper Co., Port Arthur, Ont., for 20 years, died recently at Fort Lauderdale, Fla. He was a native of Cincinnati, 65, and a graduate of Cornell. . . .

FREDERICK W. BRADSHAW was elected vice pres. and exec. asst. to the pres. of Consolidated Paper Corp. Ltd., Montreal. He is a graduate of McGill University and of the Harvard Advanced Management Program. Also elected were D. LLOYD ADAMS, as vice pres. and treas. and ALBERT F. CURR, as vice pres. and comptroller, replacing GEORGE HENDERSON who will continue as vice pres. in an administrative capacity.

JAMES LOND, paper mill project supt. with Spruce Falls Power & Paper Co., has been transferred to the engineering staff of Kimberly-Clark at Neenah, Wis. HUGH SLEEVE, maintenance engineer, Kimberly-Clark of Canada, moved to Niagara Falls converting plant. . . . COLIN M. MARQUIS is new gen. sales mgr. multiwall bag div., St. Regis Paper Co. (Canada) Ltd. He will also direct pulp nad polyethylene sales. . . . LLOYD G. SYMONS is new gen. supt. of manufacturing for St. Regis Canada. . . .

Republic Flow Meters Canada, Ltd., 352 Munster Ave., Toronto 18, Ont., in continuing its expansion of sales and service facilities throughout Canada, has established a district office at 7000 Park Ave., Montreal 15, Que. Phone: CRescent 4-3631. REGINALD P. BOURGEOIS, mechanical engineering graduate of McGill University, is district engineer.



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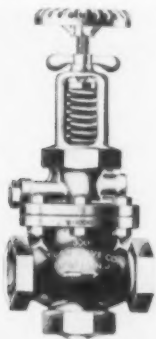
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... Will Carry 30,000 Lbs.



Applications: Lifting, carrying and dumping logs.

Advantages: The Ranger 300 Logger features four wheel drive, power brakes, power steering and power shift, four speed transmission. Differential locking device prevents

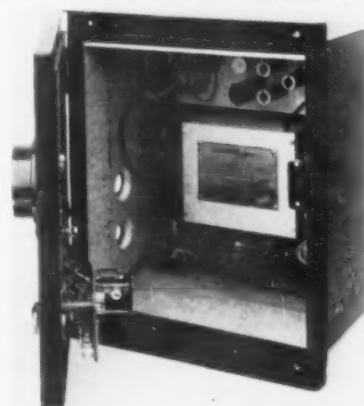
wheels slipping. Direction selector, high and low range selector and lift-tilt levers are on steering column within easy reach of operator.

Specifications: Clamping device with 30 degree tilting forks on bottom and two hydraulically operated arms on top can tilt 44 degrees forward. Truck travels 25 mph forward and reverse and has lift speed, loaded, of 28 fpm.

Available with either General Motors diesel engine of 283.7 cu. in. displacement or Hercules gas engine of 501 cu. in. displacement. Clark torque converter multiplies engine torque 300%. Forks are 72 in. long and adjust laterally more than 9 ft. **Supplier:** Industrial Truck Div., Clark Equipment Co., Battle Creek, Mich., Woodward 2-6561.

Dissolved Oxygen Analyzer

... Is Continuous and Automatic



Applications: To measure dissolved oxygen in boiler feedwater of steam power generators and for use as a check of deaerator efficiency.

Advantages: Provides continuous, automatic measurement and operates a standard recorder to give continuous record of dissolved O₂ concentration. First introduced two years ago, the analyzer has been redesigned to facilitate routine operation and maintenance.

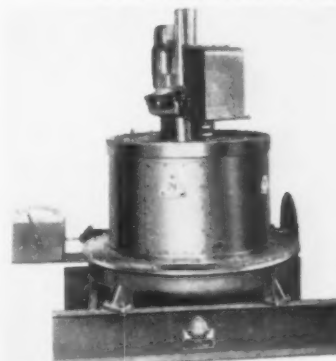
Specifications: Based on the chemical reaction, $O_2 + 4NO + 2H_2O \rightarrow 4HNO_2$, the analyzer measures the increase in conductivity due to conversion of dissolved O₂ to an electrolyte, nitrous acid. Analyzer has proved stable in both calibration and zero to within ± 1 part per billion dissolved O₂ over periods of several months. Under normal operating conditions a change of 1/2 part per billion of dissolved O₂ can be easily detected. Over-all accuracy can be held within $\pm 5\%$. For

normal sample flowrate, response to a change in dissolved O₂ content occurs about 45 sec. after sample enters the analyzer.

Supplier: Beckman Instruments, Inc., 2500 Fullerton Rd., Fullerton, Calif., Lambert 5-8241.

Automatic Thickener

... Allows Faster Settling



Applications: Processing pulps and chemicals used in the pulp and paper industry.

Advantages: Automatic raising and lowering thickener mechanism permits use of improved flocculating agents with faster settling rates, thus requiring less area and smaller diameter thickener. Eliminates need for constant attention.

Specifications: Available in 16-20 ft. standard duty thickeners.

Supplier: Denver Equipment Co., P.O. Box 5268, Denver 17, Colo.

Waste Collection System

... Is Quick and Convenient



Applications: Collecting and disposing of all kinds of industrial waste, including waste pulp, sludge, beater waste, etc.

Advantages: A truck-mounted top-bay compactor body and mechanical lifting arms working in connection with waste storage containers located at points of waste accumulation throughout a mill enable a driver to pick up, dump the container and re-

PULP & PAPER

Equipment & Supplies

turn to the disposal area in less than 60 sec. and without leaving the cab. Cantilever construction of lifting arms bridges cab area and eliminates operational hazards.

Specifications: The Dempster-Dumpmaster Model CA hydraulically compresses waste to 1/3 of its former volume, permitting it to load more than 60 cu. yd. of material before going to the disposal area. One 6 cu. yd. container holds the equivalent of 40 30-gal. trash cans which would require 1.3 man hours to empty. Containers are available in 1 through 6 cu. yd. capacities with casters available on all models. The service is available either by outright purchase or through contract haulers who furnish containers and empty them on a fee basis.

Supplier: Dept. DM-67, Dempster Bros., Knoxville 17, Tenn.

Single-Groove Sheave

... Permits Wider Speed Changes

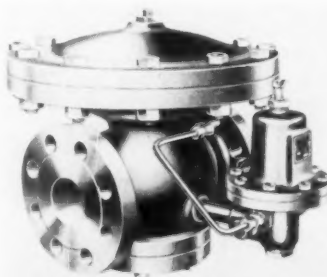
Applications: With variety of mill machinery.

Advantages: Requiring no more mounting space than the smaller "R" section one-groove sheave, the new "S" section sheave permits wider speed changes and increased horsepower transmitting capacity.

Specifications: Has range of 5.5 in. to 120 in. Companion sheaves with Magic-Grip bushings in sizes from 8.0 to 24.0 in. pitch diameter are available with "S" section belts in lengths from 54 to 150 in. "S" section belt has maximum width of 2-1/16 in.

Supplier: Allis-Chalmers Mfg. Co., Milwaukee 1, Wis., SPRing 4-3600.

Reducing Valve Is Self-Operating



Improved version of Fisher Governor Co.'s series of pilot operated

reducing valves for steam service obtains pilot operating medium directly from the inlet. This makes it desirable for applications where air or gas as an operating medium is not available or where its use is not practical.

The type 92B is designed to minimize problems inherent in steam regulation such as clogged orifices, sticky valves and diaphragm rupture. Fisher is at Marshalltown, Iowa.

Digital Scanner . . .

... Records Weights Anyplace



Applications: Listing and totaling items passing over monorail or roller conveyor; inserting weight data in



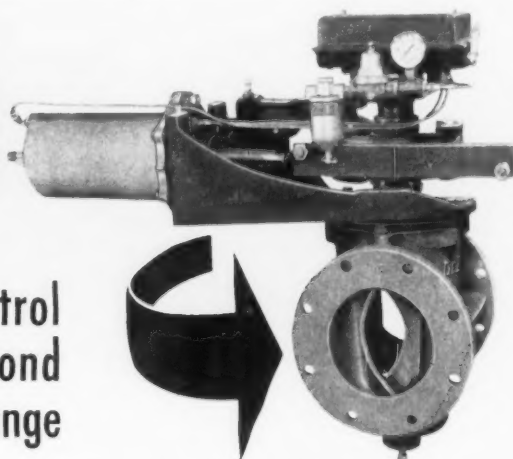
The Orifice of this DeZurik Control Valve Maintains the Same Diamond Shape Throughout the Operating Range

With disturbances from packed stock eliminated . . . with their extreme sensitivity, instant response and freedom from backlash, DeZurik Automatic Control Valves deliver the most rigid, most accurate control possible.

Flow characteristics are determined by a cam in the positioner. Any desired flow pattern can be obtained easily and quickly by changing the cam.

Air cylinder operators have "O" ring piston construction. Inserted in a non-metallic material on the periphery of the piston, the "O" ring assures maximum seal and longevity.

For more information, write



DeZURIK CORPORATION
SARTELL, MINNESOTA.

punch-card billing records; recording batch ingredients; remote supervisory checking of weights.

Advantages: Weights can be reproduced accurately at any remote location, in almost any form—tabulated, added, recorded, or indicated in digital form. The digital conversion has normal accuracy of the original, without electrical drift, non-linearity, or friction errors of earlier efforts. Eliminates possibility of human error.

Specifications: Available for practically all current types of Toledo Industrial Dial Scales.

Supplier: Toledo Scale Co., Toledo 1, O., Greenwood 4-5441.

Test Sieve Shaker

... Is Fast and Accurate



Applications: For tests in mill laboratories.

Advantages: More powerful electromagnetic drive gives more rapid gradation. Rheostat-voltmeter enables user to operate the unit at a constant 90 volts to maintain identical conditions for accurate comparison tests. Adjustable feet and spirit level on base rim give perfect leveling. Reset timer guarantees accurately timed test periods.

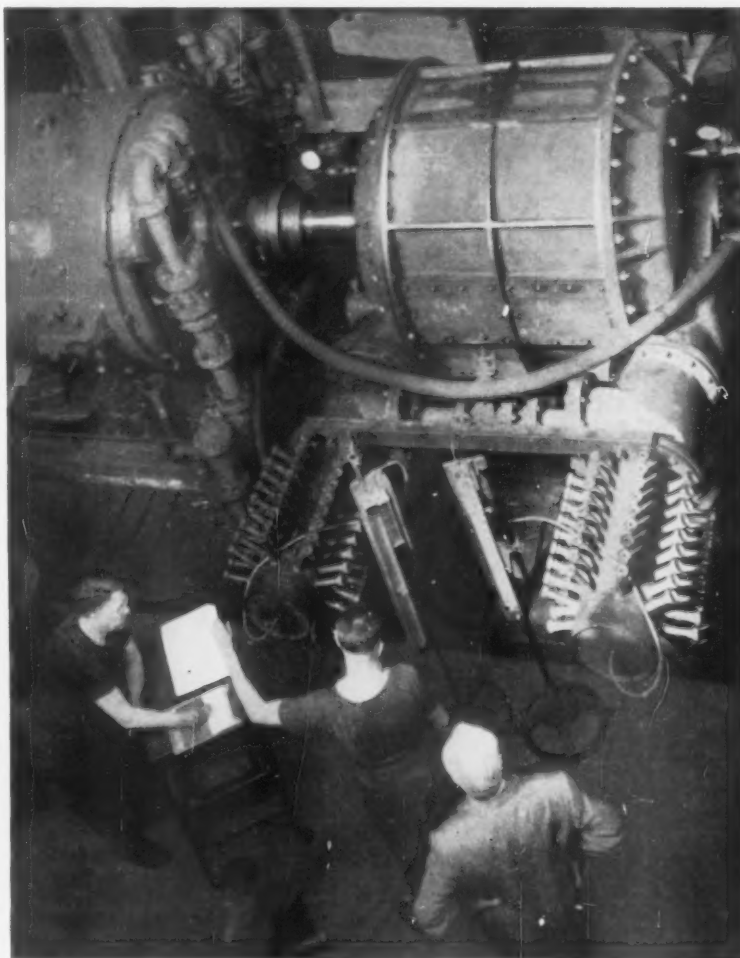
Specifications: Shaker holds six standard 8-in. sieves and bottom pan. Sieves are available in complete range of coarse and fine series in U.S. and Tyler equivalents. Unit operates on 115 volt, 60 cycle a-c or can be supplied to order for 230 volt operation. **Supplier:** Syntron Co., Homer City, Pa., 9-8011.

To Make Forests Grow Faster

An annotated bibliography of the world's literature on forest fertilization experiments has been published by the State University College of Forestry at Syracuse University, Syracuse, N.Y. Entitled "Forest Fertilization," the book should save time and money for investigators on forest soils research by reducing repetitive experiments. Practicing foresters, forest land owners and forestry educators should also find it useful.

PULP & PAPER — February 1958

Rated performance of every Nash Vacuum Pump is assured by this precise laboratory test



Rated capacities of Nash Vacuum Pumps are not theoretical. Every Nash Pump is tested individually. Air capacity is determined by delivery thru accurately machined and calibrated orifices. Related vacuum is measured by precise mercury column, and horse power is recorded electro-dynamically. Records of these tests are retained by us, and certified copies are available to Nash Pump owners.

That is one of the reasons why Nash Vacuum Pumps are installed in over a thousand leading Paper Mills. An engineer from Nash will be glad to survey your mill, and make recommendations, entirely without obligation to you.

NASH ENGINEERING COMPANY

440 WILSON ROAD, SO. NORWALK, CONN.

PULP & PAPER

Suppliers in the News



W. J. Fair, Bristol Co. Specialist
... in pulp and paper field, where he has had wide experience with Canadian International and Brunswick International Paper Cos. He joins The Bristol Co. Application Engineering Dept. Born in Canada, he graduated from Queens University, Kingston, Ont.

Heads Du Pont Dye Sales

HEINZ A. LIPS, dyes sales supervisor in the Chicago office of Du Pont's organic chemicals dept., has been named mgr. of the paper sales section, dyes and chemicals div. in Wilmington, Del. Mr. Lips, who will direct sale of all Du Pont dyes to the paper industry, is a native

of Brooklyn, N. Y., and was graduated from the New York State College of Forestry in 1937.



James B. Clarke, Goes West

... Mr. Clarke transfers from Chicago to Portland, Ore., as Pacific Northwest manager for National Aniline division of Allied Chemical & Dye Corp. He represented National Aniline for years in Midwest, living in Wilmette, Ill.

Jenks Becomes President of IH

Frank W. Jenks, formerly executive vice president, was elected president of International Harvester Co., Chicago, according to John L. McCaffrey, chairman and chief executive officer. He succeeds Peter V. Moulder, who retired as president and resigned from the board after 47 years with the company.

A native of Richmond, Va., Mr. Jenks

joined Harvester as a clerk in the Richmond sales office in 1914. He came to the general office in Chicago in 1928, was elected vice president, merchandising services, in 1944 and executive vice president in 1956. He has been a director since 1952.



Bernard J. Koziol Rejoins Black-Clawson as Exec. Sales Engineer

... in the Shurtle division, Middletown, O. He was with Black-Clawson from 1946 to 1948, then was plant engineer for St. Regis Paper Co. and gen. mgr. of Fibre Forming div. of the Arvey Corp., Olean, N.Y.



W. R. Monroe, New President of Johnson Corporation

... succeeds R. O. Monroe, now chairman. Other changes at the Three Rivers, Mich., company are: R. W. GOTSCHALL, sales mgr., to v.p./sales; T. O. MONROE to secy. and treas.; Johnson Export Corp., and v.p.; Johnson-Hamstra of Weesp, Holland, who will manufacture Johnson Joins for European markets, except France.



Mounts Joins Valley Iron Sales and Engineering Staff

... in Appleton, Wis. Mr. Mounts was with Sutherland Refiner Corp. of Trenton, N.J., for 11 years. He and his family will live in Appleton.

Greater Production of Higher Quality Pulp

- *in Less Time*
- *at Lower Cost*

This is the end result of the various processes and equipment which we have installed in pulp mills throughout North America. Send us details of your requirements.

Chemipulp Process Inc.

Watertown, N. Y.

Associated with

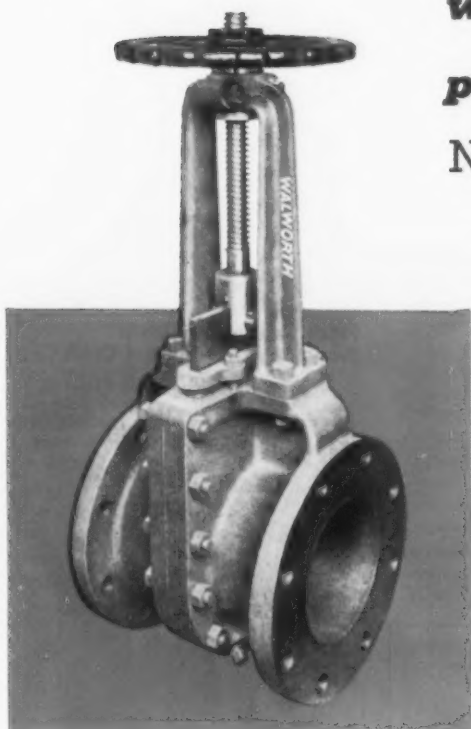
Chemipulp Process Ltd., 253 Ontario St., Kingston, Ont.

Pacific Coast Representative

A. H. Lundberg, Inc., P. O. Box 202, Mercer Island, Wash.

ASSURE *clogproof valve operation* *on stock lines* with **WALWORTH** *pulp stock valve*

No. 757F sizes 4" to 16" inclusive

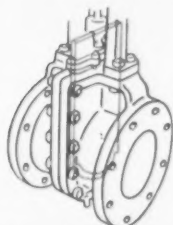


Clogproof operation makes this Walworth Gate Valve particularly suitable wherever pipelines transport pulp stock or other suspensions carrying solids or fibrous matter. There are no bonnet recesses or body obstructions to accumulate matter . . . circular ports permit full flow . . . semi-circular gate closes to a tight leakproof shutoff.

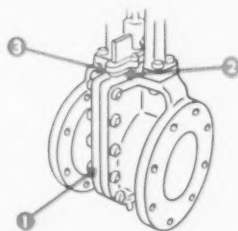
Suitable for a wide range of fluids and operating conditions, this unique valve design is available in All Bronze, Iron Body with Bronze Trim, Iron Body with Stainless Steel Trim, and All Stainless Steel construction. Handwheel, sliding-stem-and-lever, motor, and cylinder operation are available.

The complete Walworth line now includes valves and fittings for "across-the-board" use in pulp and paper mills. Gate, globe, angle, check and lubricated plug valves, as well as pipe fittings, in all conventional sizes and types. For additional technical data on the No. 757F — or any Walworth product — see your nearby Walworth Distributor or write:

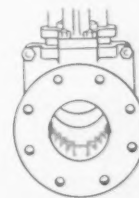
Check these features:



Semi-circular Shearing Gate . . . Sharp-ened, beveled edge of the gate shears through matter without touching inlet or outlet halves of the body. At point of closure a tight, leakproof shutoff occurs as the heel of the gate shearing edge wedges with a lug in the inlet half of the body. Ample gate length permits re-sharpening.



Bonnetless Design . . . 1) Two-piece body is bolted together and gasketed on a vertical centerline. 2) Stuffing box is an integral part of the body. 3) Packing and one-piece gland completely encompass gate.



Body Shearing Notches . . . Lower portion of the seat of the outlet half of the body is notched to better distribute the fibers of the pulp stock. This makes it easier for the gate to cut through fibrous material.

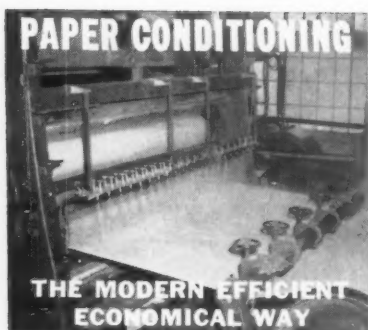
WALWORTH

Manufacturers since 1842

valves . . . pipe fittings . . . pipe wrenches

60 East 42nd Street, New York 17, N. Y.

DISTRIBUTORS IN PRINCIPAL CENTERS THROUGHOUT THE WORLD



VAPO SYSTEMS method of conditioning paper is the only time-proven method of properly and uniformly adding the desired moisture content to your sheet.

VAPO SYSTEMS units are proven for spraying surface materials as starch, casein, wax, clay, etc. Mills report that VAPO SYSTEMS have paid for themselves in less than a year.

Photo shows one of several installations in a large mill.

Write
for
factual data

**VAPO
SYSTEMS
COMPANY**

129-34 Home Avenue
VILLA PARK, ILLINOIS



Halsted



Baxa

Allis-Chalmers Appointments...

ROBERT L. HALSTED was appointed gen. mgr. Industrial Equipment div., Allis-Chalmers Manufacturing Co., Milwaukee 1, Wis. A graduate of the U. of Michigan, Mr. Halsted joined Allis-Chalmers in 1935.

EDWARD H. BAXA succeeds Mr. Halsted as manager of the processing machinery dept. Mr. Baxa graduated from South Dakota State School of Mines and has been with Allis-Chalmers since 1941.

Signode Names Managers

Signode Steel Strapping Co. has named six new regional managers, promoted from former positions of district managers: C. J. DA COSTA, Cleveland; R. E. JACOBS, St. Louis; T. E. NOON, Boston; ALMER PEARSON, New York; S. N. SALOMON, Pittsburgh, and J. R. WILLIAMS, Chicago, A. J. LINK and M. L. FAGIN were previously appointed regional managers of

San Francisco and Cincinnati regions respectively. Newly district managers are H. E. EDWARDS, Milwaukee district; R. F. QUADY, Minneapolis; R. E. LENHARD, Indianapolis; S. R. TUCKER, New Orleans; J. M. COLLINS, Kansas City; R. B. DEACON, Memphis; H. A. TEIGEN, San Francisco; E. T. MCFATE, Buffalo; C. A. CARTER, Portland; T. J. O'DONNELL, New York; and J. J. DANIELS, Newark.



Finch Represents David Brown, Inc. in Northern Calif. . .

. . . Harvey E. Finch of 523 Fremont St., Sharp Park, Calif., was named gear sales representative. He was previously with Boston Gear Works.



Dewey H. Nelson, new Asst. Mgr., Becco Chemical Div., Food Machinery

Mr. Nelson continues as sales mgr. He is a graduate of M.I.T. and was a pilot in the Air Force during World War II. He joined Becco in 1947.



Background Sign—"Together"

. . . indicates W. S. Nott Co.'s recent appointment as exclusive distributor for U.S. Rubber Co.'s mechanical goods division throughout the Upper Midwest. G. A. LOVELL, New York (left), vice president of that division, is pictured above with R. W. MORGAN (middle), vice president of Nott, and W. A. LINDFORS, vice president of sales for the Minneapolis industrial distributor.

AMOSLAND RD. AT B. & O. R.R.
HOLMES, PENNA.
LEHIGH 2-7900

NELSON COMPANY

STEAM FITTERS — PIPING CONTRACTORS
CARBON — STAINLESS — ALLOY — PLASTIC — PVC MATERIALS
PIPING FABRICATORS

STEAM — PULP & PAPER MILLS — STEEL MILLS — GAS & WATER UTILITIES
CHEMICAL PROCESS SYSTEMS — REFINERIES — SEWAGE SYSTEMS

**STOP TELESCOPING ROLLS
MUSHROOMING CORES**

Use Air Operated HORTON Clutches and Brakes to control the sheet tension on your winders and back stands. Take the guess work out of tensioning and let HORTON equipment give you uniform tight rolls all the time.

VARIABLE SPEED CLUTCH PULLEYS
GOVERNOR CONTROLLED BRAKES

HORTON MFG. CO., INC.
MINNEAPOLIS 14, MINNESOTA



**Lawrence B. Lane, Sales Engineer,
Albany Felt Co. . . .**

. . . replaces Joseph Tanner, now district sales mgr. Mr. Lane's territory includes parts of Pa. and Md. He is a graduate of Syracuse U.

Assignments in Diamond Alkali

FRANK CHIRENICK, general manager of Diamond Alkali Co.'s Electro Chemicals Division, announces that LLOYD R. MCCOY, who has headed the division's technical service section at Painesville, O., since mid-1956, returns to Cleveland headquarters as assistant to the manager of chlorine and hydrogen sales. Named to succeed him at Painesville as chief of technical service is WAYNE INBODY, group leader in caustic soda and chlorine research for the past year and a half. At his new post he will be responsible for customer service on chlorine, caustic soda, caustic potash and hydrogen.



**W. E. Roubie, Engineer,
Stebbins Eng. & Mfg. Co.**

He's a 1930 grad of Clarkson (m.e.), spent two years as sales engineer for Taylor Instrument Co., then 8 years with New York Air Brake and 11 years for Jessen Co.

Hercules Men in Course

An advanced course on paper technology was recently concluded at Hercules Research Center, Wilmington, Del. for technical representatives from Hercules' Virginia Cellulose Dept., all specialists in serving users of Hercules' CMC and Chemical Cotton in the paper field. They are J. MACANDREW, Chicago Office; G. A. REASOR, Detroit; J. LAWES, Los Angeles; G. STELTZER, Wilmington, and R. KITCHELL, New York.



**Howard F. Brown, Vice Pres. i/c
Mfg. Service, Lockport Felt Co. . .**

. . . will supervise Lockport's staff of technical service representatives in the company's current expansion of field service to mills. Mr. Brown joined Lockport 30 years ago and progressed through all departments to his most recent position as vice pres. i/c mfg.

Hubinger Appointments

The Hubinger Co.'s Bulk Division Sales Manager, ROY UNDERWOOD, announces HOWARD L. VANDERBERG, Kalamazoo, Mich., has been added to the bulk starch sales organization as manager, paper mill sales, and will headquarter at Kalamazoo. HOWARD S. BRIGHTMAN has been named to the position of northeastern division manager, while C. H. Lawrence has been appointed New England manager.

TENSION CONTROL OUNCES TO INFINITY

Maintain uniform tension . . . reproduce desired tension at will with the new Pneumatic Applications Co. tension control system. Performs with outstanding uniformity on all pneumatic winding and unwinding operations.

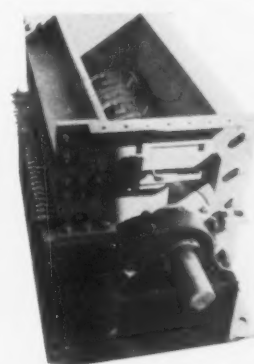
Load sensing journal varies pressure to clutch or brake, making tension adjustments instantly . . . automatically to provide exact tension throughout operation. Throttling type controller has proportional band of .067% . . . responds to load changes of a fraction of a pound at any control point.

Compact control panel can be mounted at any convenient location. Operation is so simple little training and no skill is required to operate entire tension control system.

Load sensing journal measures tension at the web of material for greatest accuracy. Sensitive circuit and unique multi-valued variable reset response rate absolutely eliminate unstable control (hunting).



THE PNEUMATIC APPLICATIONS COMPANY
College Highway, Simsbury, Connecticut



The Marvelous Montgomery BLO-HOG

Patents Pending

The Only All-Purpose
Hog In the World!

"SOLVES"

Four difficult problems
for the paper industry

- Grinds any kind of bark and billets, wet or dry.
- Excellent as a re-chipper producing very low percentage of fines.
- For groundwood mills—grinds bull screen rejects in one pass, small enough for feeding into machines for final refining into pulp.
- Grinds groundwood pulp laps for complete drying to save 40% of freight bills.

West Coast Representative—Sumner Iron Works, Everett, Wash.
Canadian Representative—Canadian Sumner Iron Works, Vancouver, B.C.

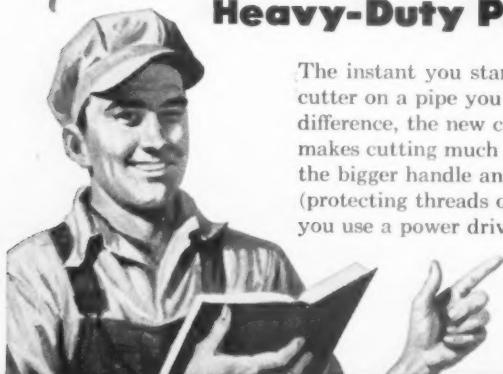
JACKSONVILLE BLOW PIPE CO.

P. O. Box 3687 Jacksonville, Florida ph. EL 5-5671



So you get easier quicker action with

New **RIGGID** **Heavy-Duty Pipe Cutters**



The instant you start feeding in this new cutter on a pipe you feel the remarkable difference, the new cushioning effect that makes cutting much easier and faster. And the bigger handle and extra long shank (protecting threads on screw handle when you use a power drive) helps, too.

Try it, compare it
... buy it at your
Supply House.

The Ridge Tool Company, Elyria, Ohio, U. S. A.

LITERATURE

Grinders are Described

United Engineering and Foundry Co., Wilmington Plant, Wilmington 99, Del., offers to send on request its latest United bulletin featuring the Bridgeport line of hydraulic knife and face grinders, with details for production grinding excellence.

It describes features of the machines including automatic wheel feed, abundant coolant, variable table speed, convenient controls. Grinders are available in three models, the heavy-duty horizontal spindle or the vertical spindle, also, the medium weight hydraulic-horizontal spindle grinder.

Book on Silent Chains

One of the most comprehensive books on the subject of silent chain drives, Book 2425 available free from Link-Belt Co., Dept. PR, Prudential Plaza, Chicago 1, contains 88 pages of detailed engineering data and illustrations of silent chain's versatility in a wide range of applications.

From tiny fractional horsepower drives used in small power tools to huge drives transmitting thousands of horsepower, this chain is built for long life, continuous operation and trouble-free performance at high speeds.

On Sprout-Waldron 36-2 Refiner

A fully illustrated eight page technical bulletin (96-B) on the single rotating disc pulp refiner is available on request from the Pulp and Paper Division, Sprout, Waldron & Co., Inc., Muncy, Pa. In addition to detailed design and construction data the booklet illustrates various plate designs and describes extensive Sprout-Waldron testing facilities. The Model 36-2 Refiner is precision engineered for pulping applications where rubbing and brushing (without cutting) is required.

Describes Cast Steel Gate Valve

A new, four-page illustrated bulletin describing Walworth's 150-lb. and 300-lb. cast steel gate valves is announced by the Walworth Co., 60 E. 42nd St., New York, N.Y. The bulletin lists ten features of the valves, stressing their durability, easy maintenance and erosion-resistant properties. It also provides dimension and weight charts and line drawings for each type.

How to Stitch Metals

A new booklet, "Metal Stitching, A New Idea in Fastening," tells how to stitch metal to metal or to non-metallic materials and illustrates typical applications which have increased production and cut materials costs. Write to Acme Steel Co., 135th St. and Perry Ave., Chicago 27, Ill.



*Time to
Change Knives?*
**NOT IF IT'S A
SIMONDS
RED STREAK**

**PAPER
KNIFE**

Famed for Long Life, Straight Cutting!

Simonds Paper Knives provide the perfect combination of toughness and edge-holding. Because they keep "putting out" longer while cutting cleaner and straighter, you save on down time. You get these 3 important quality features:

- (1) **Both Concave and Taper Grind** — the face side not only tapers back from the cutting edge but is concave ground. (Knife cuts free and easy without rubbing the stock.)
- (2) **Mirror-Smooth Finish on Face Side** — this finish "reflects" the results you get in a keener cutting edge and longer knife life.
- (3) **Special Alloy Steel** — Simonds paper knife steel (S-301) is formulated specially for cutting paper. That's why it packs the hardness and toughness to give a bonus in more cuts per grind.

You'll cut costs as well as paper with Simonds Red Streak Paper Knives.



For Fast Service
from
Complete Stocks

Call your

**SIMONDS
Industrial Supply
DISTRIBUTOR**



**SIMONDS
SAW AND STEEL CO.**

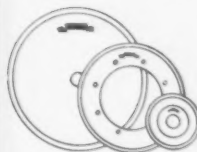
FITCHBURG, MASS.

Factory Branches in Boston, Chicago, Shreveport, La., San Francisco and Portland, Oregon, Canadian Factory in Montreal, Que., Simonds Divisions: Simonds Steel Mill, Lockport, N. Y., Heller Tool Co., Newcomerstown, Ohio, Simonds Abrasive Co., Phila., Pa., and Arvida, Que., Canada

Other
High Quality
SIMONDS
Products It Will
Pay You to Use



HOG & CHIPPER KNIVES



CIRCULAR CUTTERS

PULP & PAPER

CHEMICALS COLUMN

Stable Price for Rosin Size

Hercules Powder Co.'s Paper Makers Chemical Dept. has announced a change in the method used for 50 years for pricing all of its pale grades of rosin size. Effective Jan. 1, size prices will be quoted on a "flat price" basis, rather than fluctuate with the gum rosin market. Prices will be announced quarterly and will remain firm for 90 days.

Consumers have long expressed strong preference for stable prices which do not reflect the usual weekly fluctuations of the gum rosin market and will, Hercules believes, welcome this change in pricing policy.

Will Expand Alabama Plant

Dr. W. G. Malcolm, president, announces expansion of American Cyanamid Co.'s Mobile, Ala. plant to include facilities for producing wax sizes. The expansion is "in keeping with the company's recognition of the rapid and continuing growth of the paper industry in the deep South," he said.

New Coating Resin

A new vinyl-acrylic copolymer coating emulsion developed especially for the paper industry is being marketed by National Starch Products Inc. According to James Dillon, vice president, the new Resyn 2203[®] possesses excellent film flexibility and strength, is characterized by low viscosity, superior pigment binding ability, excellent film clarity, and good mechanical stability. The dried film is virtually odor free.

Cleaner Adds to Felt Life

Neovadine AL is a liquid dispersing agent for removing fillers, sizings, dyes and pitch, leaves felts clean, soft, open and resilient says Ciba Co., Inc. How: felt is sprayed with solution of 2 to 4 lbs. per 100 gals., applying the heated spray and saturating felt for ½ hour. Felt is washed with warm water. Some results: longer running periods between felt washings; indications that felt will last much longer than ordinarily.

Neovadine is non-foaming; dissolves readily in water, is easily rinsed out of felt.

New Epoxy Adhesive

Carboline Co., formulators and manufacturers of protective coatings

and adhesives, announces a new modified epoxy adhesive, for use in bonding new concrete to old concrete. This material, designated as Carboline Concrete Adhesive 192-34, now solves many difficult concrete patching jobs such as the leveling of floors that are badly deteriorated and contain ruts, gullies, holes, etc.; assures tight bond of the new concrete to the old concrete.

For information and samples 192-34, write Carboline Co., #32 Hanley Industrial Court, St. Louis 17, Mo.

Parez Price Reduced

Reduction of 4¢ a lb. in price of Parez Resin 607 (melamine resin used in Melostrength papers), has been announced by John M. Walsh, manager of Paper Chemicals Dept., American Cyanamid Co.

New Saran Resin

A new lacquer coating material, Saran Resin F220, has been introduced by The Dow Chemical Co. It is differentiated from other saran resins by its low viscosity and complete solubility in acetone, making F220 lacquers particularly desirable as a coating where low-cost, easy-to-remove solvents are needed. It is singularly adaptable to high speed coating processes.

ROGERS

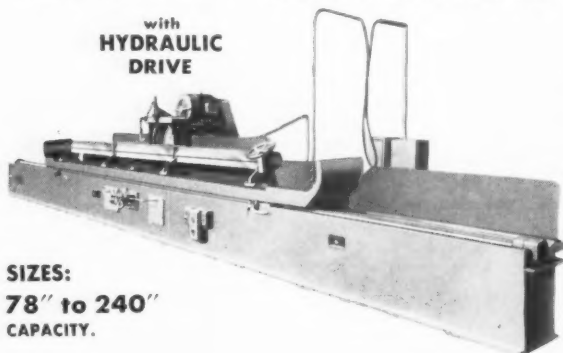
MODEL

EXTRA

300

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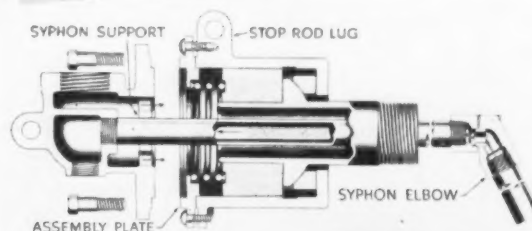
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Type "SBP" shown is completely self-supporting. Like all Johnson Joints it has no packing, needs no lubrication or adjustment. The syphon elbow replaces unwieldy curved condensate drainage pipes with two straight pipes, hinges to pass right through the joint. Write for Bulletin S-3002. Johnson Rotary Pressure Joints are available for all operating speeds, pressures, mountings.

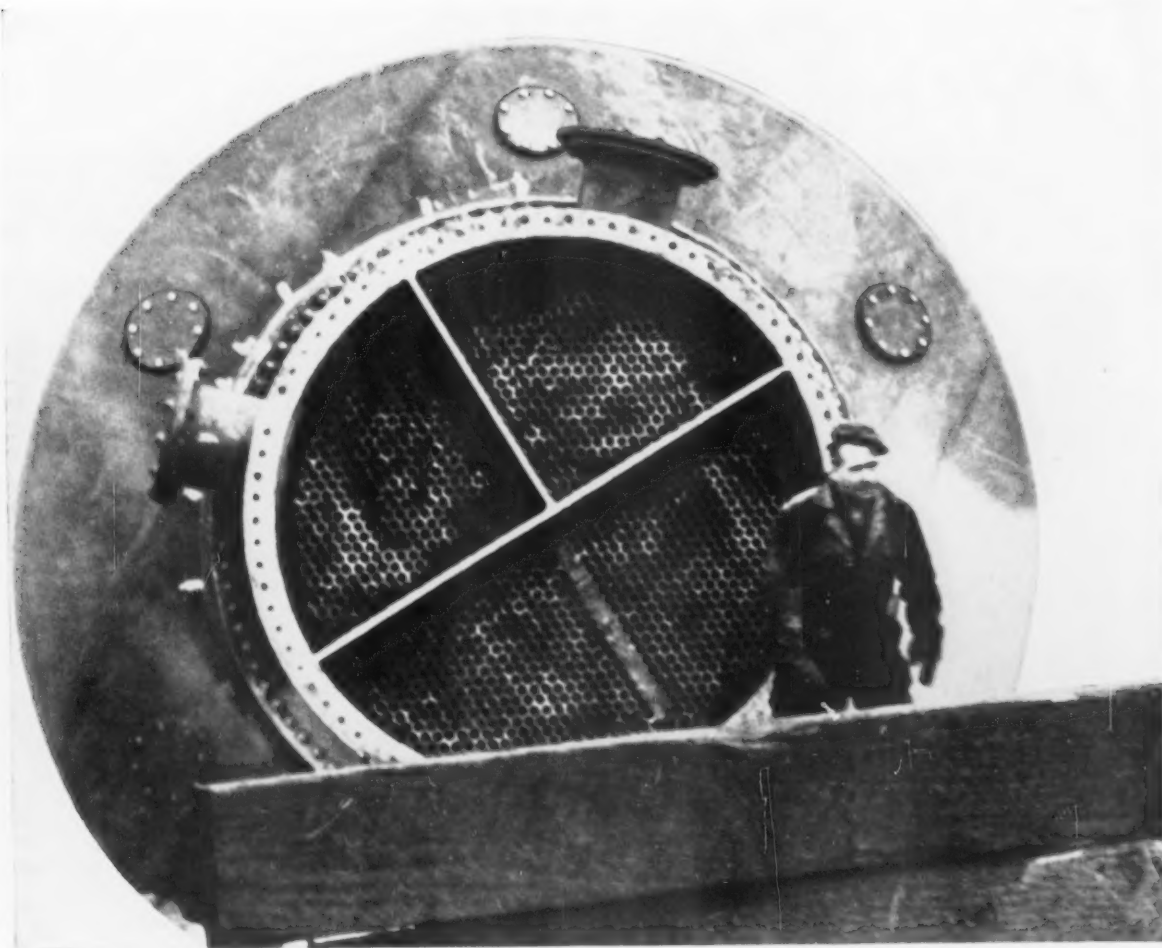
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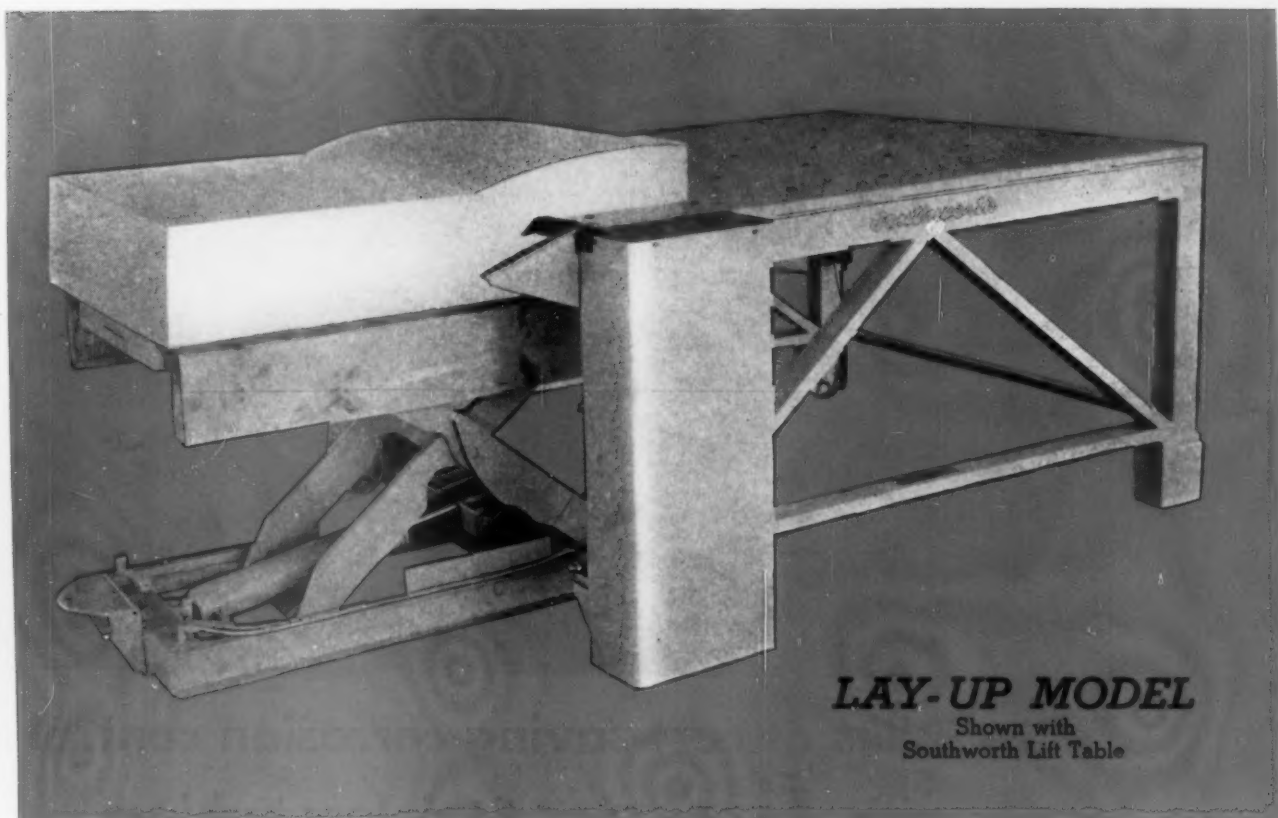


The Carpenter Steel Company
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MORE **TPH*** WITH SOUTHWORTH'S NEW



LAY-UP MODEL

Shown with
Southworth Lift Table

minimum capital investment, per pair, pays off in maximum trimmer production engineered to prevent idle time, eliminate manual lifting, conserve floor space 1,000 lb. capacity, sheet size 52 x 76 — air film buoyancy protects sensitive stock

TONS PER HOUR* is the one way of rating the efficiency of a mill trimming operation. As trimming cost represents a major portion of overall manufacturing costs, any savings at this stage may reflect directly on the profit picture. But even with the latest model trimmers, a good TPH depends to a great extent on the human factor . . . the speed of de-skidding, feeding, unloading and re-skidding. At least, that *has* been the case!

To improve this speed, by reducing manual handling to a minimum, Southworth research produced this pair of Straddle Transfer Tables. The Lay-up Table literally *loads itself* as it straddles

the skid of untrimmed sheets. The air-cushioned trimmer load is then carried by the Table to the trimmer and presented for feeding with no strain or exertion on the part of the operator. The Take-away Table reverses this procedure, carrying the trimmed stack on for quicker and easier re-skidding.

Better distribution of the work load between the three operators insures *full time operation of the trimmer*. The low initial cost of a Southworth Straddle Table installation, therefore, is soon recovered in the combined savings made possible by a more efficient and effective finishing room . . . for as TPH increases, production costs decrease.

STRADDLE TABLES



TAKE-AWAY
MODEL



Installation at Allied Paper Corporation, King Division, Kalamazoo, Michigan, showing typical layout of a three-man operation with a pair of remote control Tables servicing an 85 inch mill-trimmer. Note:

- 1 Simplified and direct flow of stock to trimmer.** Operator at right de-skids untrimmed stock. Lay-up Table makes rapid traverse and presents load to inventory table. Upon completion of trim, Take-away Table brings stock to operator at left who stacks up skid load ready to wrap and ship. Tables have no hampering superstructures.
- 2 Elimination of manual lifting and reduction in stock manipulation.** Trimmer operator is responsible only for trimming stock. As another load is always waiting, there is no costly idle time on this equipment. In fact, production can actually be predicted in terms of knife cuts per hour!
- 3 Production costs decrease as production rate increases.** Depending upon sheet size, basis weight and number of cuts per sheet, the handling of full trimmer loads, full time, can result in production increases to as much as 5 tons per hour over a former average of 2 tons . . . lowering cost considerably.
- 4 Trimmer accessories planned for trimmer layout.** Here the installation meets requirements of existing recessed lifts. Tables are equally suitable in surface lift layouts or with more efficient Southworth Lift Tables, stationary or portable.

For Further
Details Write:

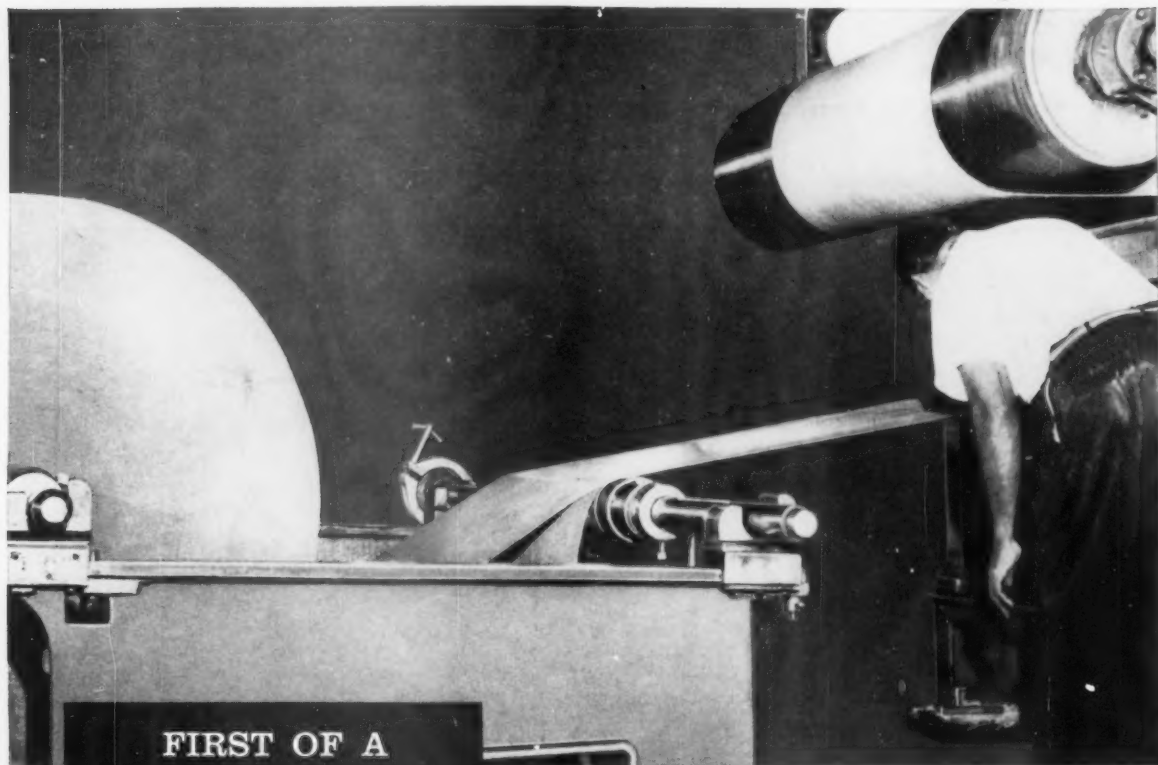


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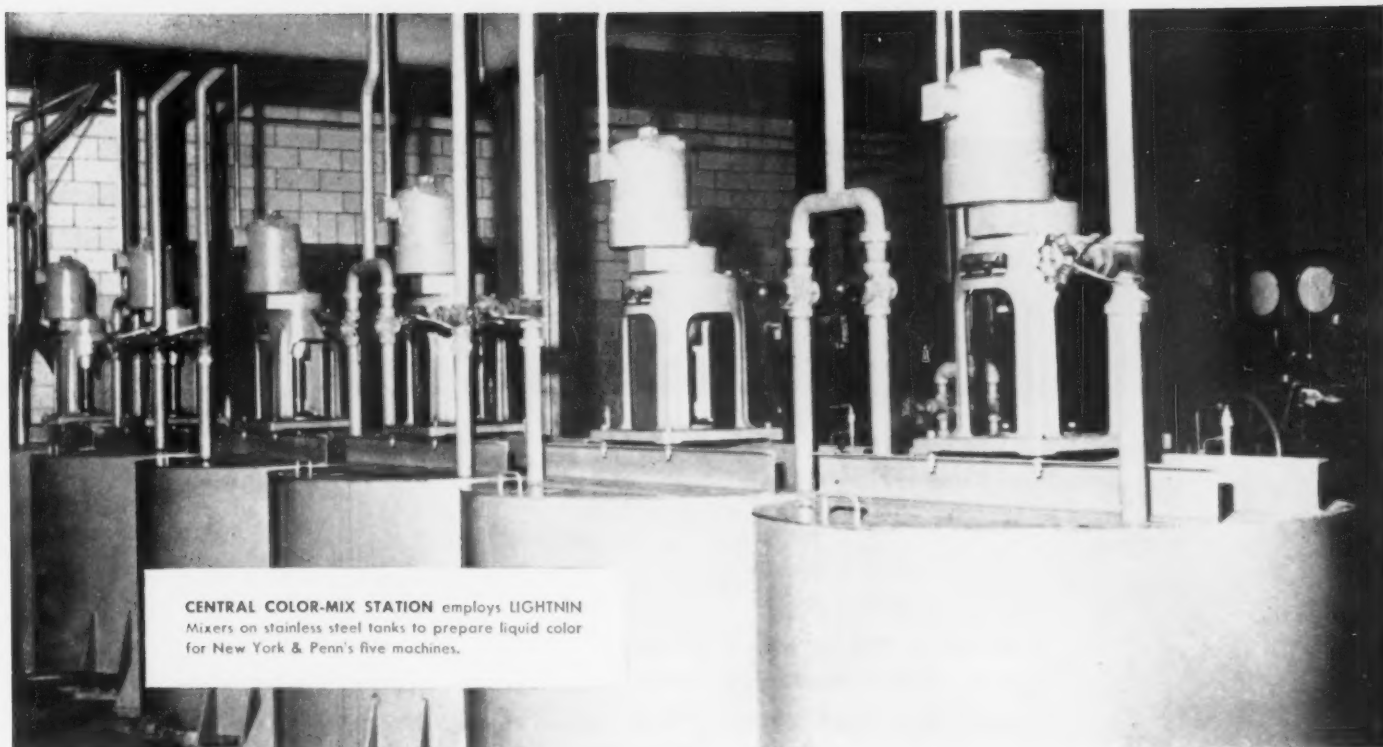
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CENTRAL COLOR-MIX STATION employs LIGHTNIN Mixers on stainless steel tanks to prepare liquid color for New York & Penn's five machines.

How New York and Penn mixes color and size for biggest automated stock system

Mixing additives is a crucial phase of stock preparation at the Johnsonburg, Pennsylvania, mill of New York and Penn.

Reported the largest of its kind, this mill's new \$1.2 million stock system is highly automated. It delivers several types of stock, under precise control from one central panel, to five paper machines producing an average daily output of 250 tons, with far larger built-in future capacity.

3 mixing jobs—1 supplier

Of the many fluid mixing operations in this system, the main common denominator is uniformity. New York and Penn satisfies these widely different mixing needs—all with LIGHTNIN Mixers:

1. Color for the entire five-machine

system is brought to uniformity rapidly in a battery of six 100-inch-deep stainless steel tanks equipped with propeller-type LIGHTNINS.

2. Starch is cooked in one 3,600-gal. tank heated by direct steam from two jets. A turbine-type LIGHTNIN Mixer keeps the viscous starch moving to prevent burning during the one-hour cook; provides high heat transfer efficiency right up to the bursting point; then holds starch uniform until it is ready for use.

3. Clay and starch for coatings are mixed to uniformity in a 4,630-gal. tank adjacent to the starch cooking tank. A LIGHTNIN turbine-type mixer gives thorough, intimate blending of the heavy slurry averaging 25-30% solids content, and holds the coatings

at full uniformity. Both turbine-type units at New York and Penn are equipped with change gears, so mixing speed can be altered if process requirements make it necessary.

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You can meet any fluid mixing need—from a laboratory test unit up through a 100-ton stock chest—with LIGHTNIN Mixers. You get *guaranteed*, fully predictable results... *standard* mixer construction that saves money if you ever need replacement parts... fast, competent service conveniently nearby.

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| <input type="checkbox"/> Top or bottom entering; turbine, paddle, and propeller types: 1 to 500 HP (B-102) | <input type="checkbox"/> Laboratory and small-batch production types (B-112) | <input type="checkbox"/> Data sheet for figuring general mixer requirements (B-107) |
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| <input type="checkbox"/> Side entering: 1 to 25 HP (B-104) | <input type="checkbox"/> Quick-change rotary mechanical seals for pressure and vacuum mixing (B-111) | <input type="checkbox"/> Portable: 1/8 to 3 HP (B-108) |

Check, clip, and mail with your name, title, company address to:

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STARCH COOKS EVENLY, can't burn, in 3,600-gal. tank equipped with turbine-type LIGHTNIN. A similar unit mixes starch and clay for coatings.

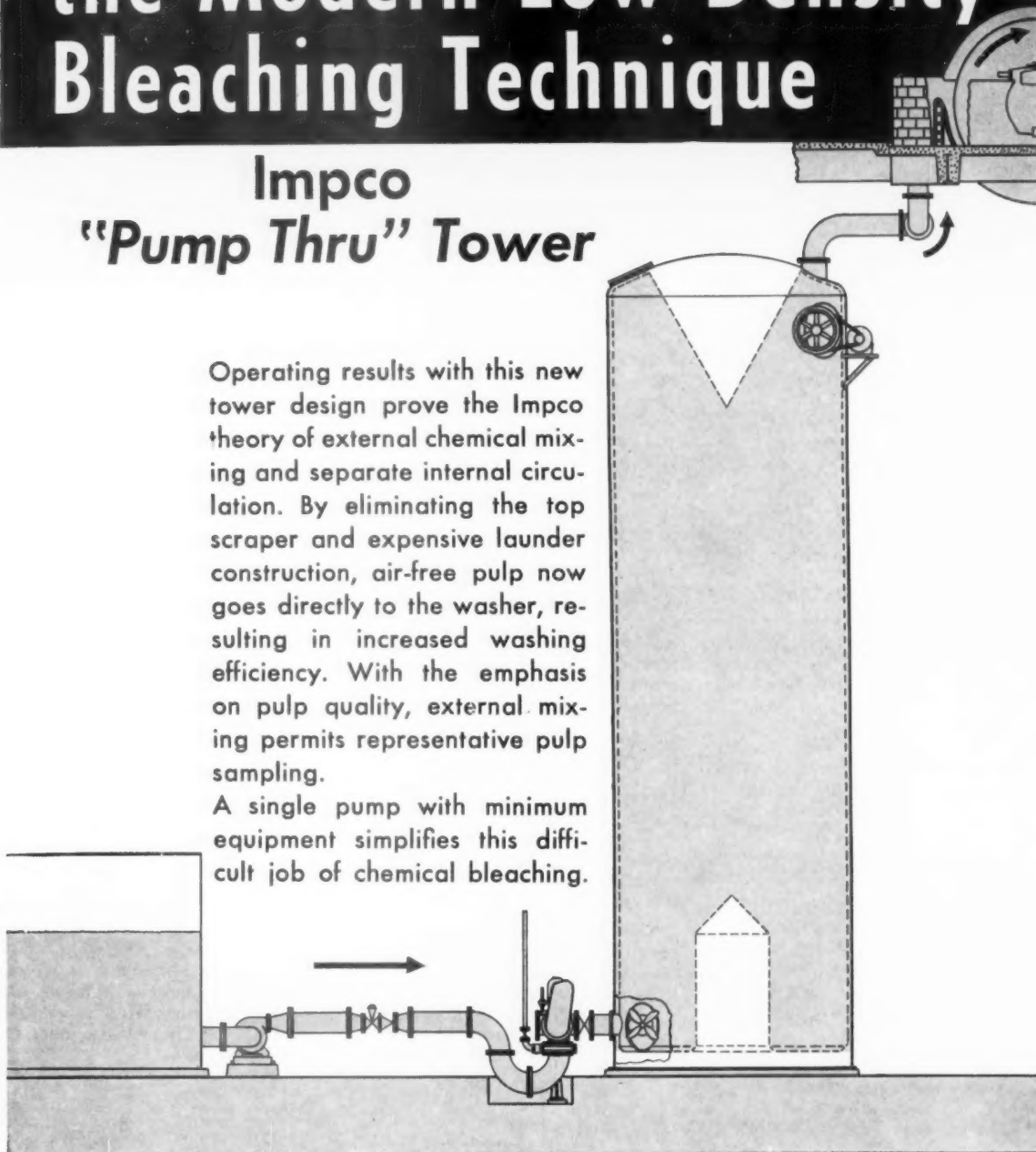


the Modern Low Density Bleaching Technique

Impco "Pump Thru" Tower

Operating results with this new tower design prove the Impco theory of external chemical mixing and separate internal circulation. By eliminating the top scraper and expensive launder construction, air-free pulp now goes directly to the washer, resulting in increased washing efficiency. With the emphasis on pulp quality, external mixing permits representative pulp sampling.

A single pump with minimum equipment simplifies this difficult job of chemical bleaching.

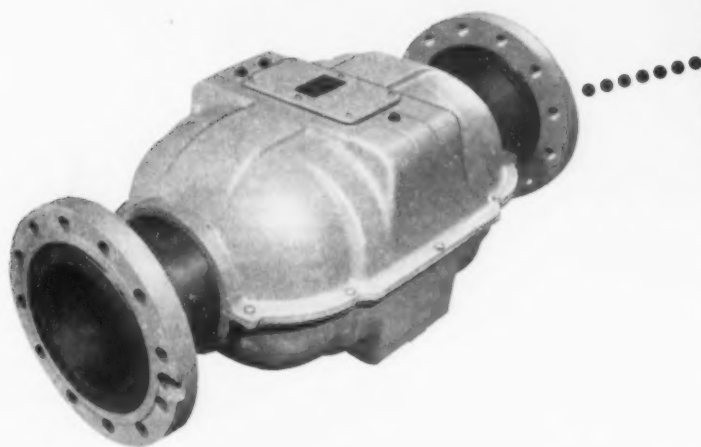


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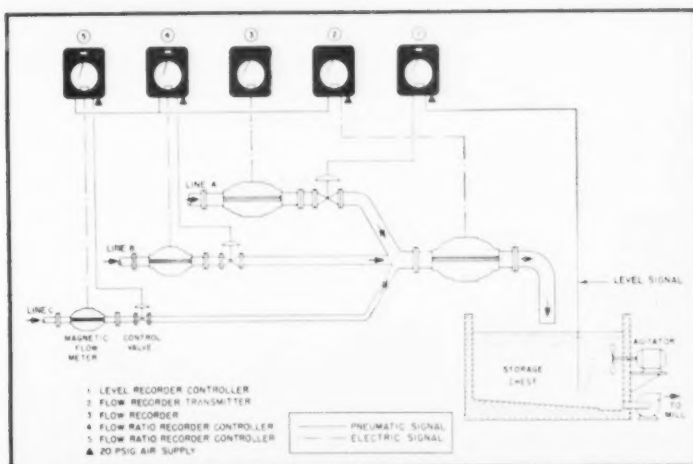
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Stocks ratioed to each other or to total flow

Above is a typical application of the Foxboro pulp stock blending system, in which each stock flow is ratioed to total flow. However, lines B and C can be ratioed to the major furnish, line A, if desired. In either case, pulp stock flows in line B and C are controlled with ratio controllers 4 and 5. Ratios are set on the controller dials. Line A then automatically supplies balance of the pulp stock required to maintain constant level in storage chest. Any ratio easily altered by changing dial setting on proper ratio controller.

Here at last is a problem-free method for continuous pulp stock blending. Based on the Foxboro Magnetic Flow Meter, this system has no line restrictions or pressure taps — nothing to foul or plug up — nothing to interfere with sustained accuracy of flow measurement.

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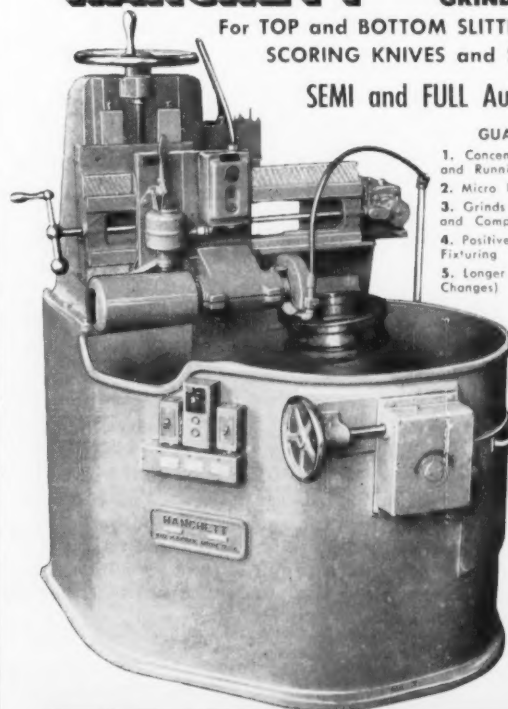
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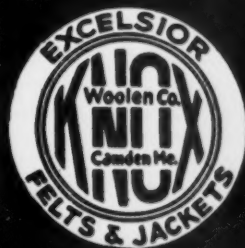
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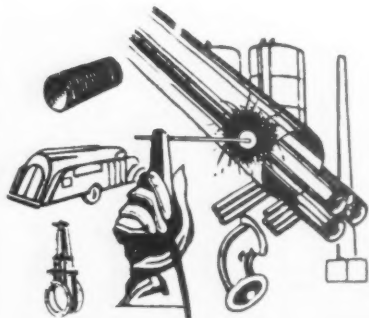
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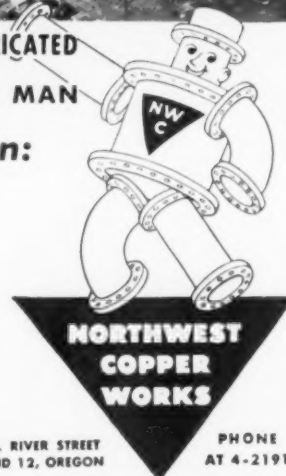
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The LAST WORD **PULP & PAPER** EDITORS' PAGE

The Place of Paper

A Recent Editorial in the New York Times

We take paper for granted. Not merely newsprint, which we know is costly, but just everyday paper. Paper sacks, paper towels, paper cartons, wrapping paper, writing paper, paper matches, paper on cigarettes, paper raincoats, paper tablecloths, paper, paper, paper. We crumple it, we burn it, we throw it into litter baskets. We use it and forget it. And we use more than 300 pounds per person every year in this country.

It is hard to understand, therefore, the plight of so many of the world's people whose paper supplies are totally inadequate. In most of Asia, for example, the use of paper is less than nine pounds a year per person as compared to those 300 of ours. Every scrap must be salvaged. It must be used again and again if that is possible. Wrapping the fish in the old newspaper is only the beginning of it. A torn magazine is a bonanza.

The Food and Agriculture Organization of the United Nations has just pointed out that this is a serious problem in the economy and progress of "under developed" areas. It is hard to make educational progress when there is no paper available upon which to print textbooks. We were faced with that acute problem when we began to discuss the rehabilitation of Korea. It is hard to hold an election if there is inadequate paper upon which to print the ballots. That has happened, too. Paper can be a cultural as well as an economic instrument, as we are finding out.

After a meeting of the Asia-Pacific Forestry Commission in Bandung it was decided to undertake more ambitious programs of forestry planting to obtain additional supplies of needed pulp. Naturally, the first solution of the problem that presents itself is the use of a wider variety of pulp sources, such as bagasse (sugar cane residue), Abaca (Manila hemp), bamboo, sisal, cogon and straws. Experiments are being made in all these fields, but they take time. In some cases, such as rice straw, for example, the cost may be prohibitive. Meanwhile the need remains.

One thing that can and should be done is an immediate exploration of the possible use of paper that is now wasted in the large consuming countries. Repulping is certainly possible on a larger scale. There can be a campaign of education in the matter of saving. It was done as a war measure, it can be done in peacetime, and it should be.

Time to Give Credit Where It is Due

As the year 1958 begins, it seems the time has come to recognize that the pulp, paper and paperboard industries have demonstrated their hardihood.

They are coming back after some jittery months. Some divisions are coming back slower, but it is important to recognize that the tide has turned. Twenty or 30 years ago it might not have held its lines, and prices, so well.

The 1957 experience proves the stability of pulp, paper and paperboard. Its securities are currently undervalued. But the long term picture glows even more brightly.

Better capital organization, growth of diversified markets and products, more stable timber resources and integration from tree to end products—these are factors which have created a firm foundation for these industries.

Paper and Paper Union Replies to Reuther

Walter Reuther, one of Detroit's most widely known citizens, argues that "automation" will cause unemployment unless union leaders force management to spread work by shorter hours, with the same pay.

Actually, automation has been around a long time, and the effect of it—as we have seen in the pulp and paper industry—year after year for many years, is just the opposite.

But, getting back to Mr. Reuther—he goes on to argue that the cost of the shorter work week could easily be taken out of "enormous" profits.

Maybe someone should mail him a copy of our July 1957 issue, referring to page 27, where we report the facts of life about profits, as explained so clearly by Dr. A. Neil McLeod of the Institute of Paper Chemistry and his student panel. There is just so much "pie" to divide and in order for employees to get more, the government would undoubtedly have to take less—because that take has been rising and profits and retained earnings have been going down.

It is interesting, also, to note that in 16 major pulp and paper mills, non-productive workers have increased 50% in the past decade, while productive workers have increased 6%.

A reply to Mr. Reuther—and one of the best we have seen—comes right from labor's ranks and from a labor leader well known in this industry.

Says George Brooks, research director of the Pulp, Sulfit and Paper Mill Workers union:

"There is no evidence in recent experience that workers want shorter daily or weekly hours. The evidence is all on the other side. Hundreds of local and International officials have testified that the most numerous and persistent grievances are disputes over the sharing of overtime work. The issue is not that someone has been made to work, but that he has been deprived of a chance to make overtime pay. Workers are eager to increase their incomes, not to work fewer hours."

The shorter work week would mean either less goods produced or the same amount produced but under higher cost conditions (either from hiring more workers or paying present workers more overtime). The higher costs would have to be absorbed by the price structure which in turn influences the public's choice. Mr. Brooks' point is that the workers prefer more goods to more free time.

The choices of consumers in our economy seem to be narrowing.

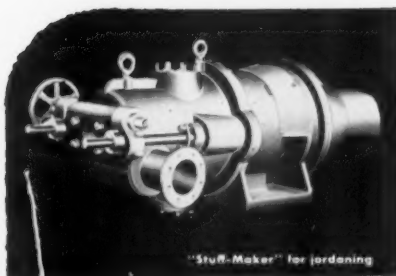
"Over-Capacity" or "Under-Consumption"?

Recently, at a press meeting for editors from various fields, a textile publication editor said to a PULP & PAPER editor:

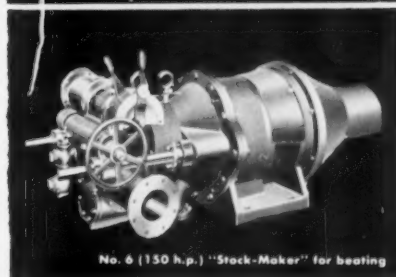
"I envy you. You're in a fabulous industry. Any time your industry wants to, it could take over textiles, with your non-woven fabrics."

You wonder if "over-capacity" is really this industry's problem—or is it "under-consumption."

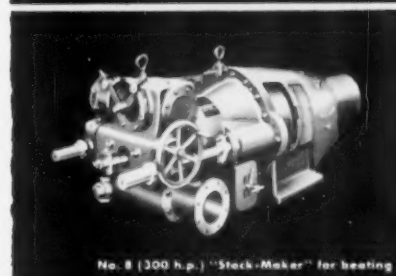
"There is a time when silence is not golden," says Dr. Israel Chodos, "just yellow."



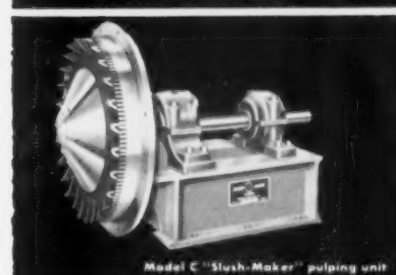
"Stuff-Maker" for jordaning



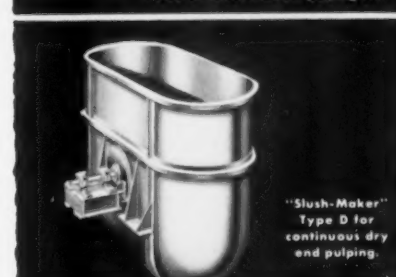
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